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AUTHOR	Matteson, Harold R.; And Others
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ABSTRACT

The report examines the professional competencies needed by postsecondary and secondary school agricultural education instructors. A questionnaire covering 11 functions, 39 tasks, and 89 competencies was administered by mail to the 435 vocational agriculture instructors in Wisconsin, of Whom nearly two-thirds of the secondary school and postsecondary production instructors and one-half of the postsecondary nonproduction instructors responded. A detailed examination by competency of the responses to the questionnaire indicates such things as: nonproduction respondents stressed inservice over preservice education for 23 of the 89 competencies; secondary and postsecondary production instructors either had no preference for one or the other or placed more emphasis on preservice programs; a positive relationship existed between the secondary and nonproduction respondents' participation in student teaching and their ability to plan for instruction; in general, respondents that had most frequently participated in inservice activities placed greater emphasis on the development of professional competencies in their inservice rather than their preservice educational programs. The report closes with brief discussions of competencies agriculture education instructors should possess, clientele needs, and adequate delivery system development. Four appendixes reproducing the questionnaire and tabulating the study's results comprise 40 pages. (JR)

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FUNCTION-TASK-COMPETENCY APPROACH TO CURRICULUM DEVELOPMENT IN VOCATIONAL EDUCATION IN AGRICULTURE

Research Report #2 Professional Competencies Possessed and Needed by Vocational Instructors in Agriculture and When They Should be Developed

Harold R. Matteson
Walter T. Bjoraker
Richard A. Jensen

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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College of Agricultural and Life Sciences
Department of Continuing and Vocational Education
University of Wisconsin--Madison

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Preface

This report is the second of a series of reports emanating from a longitudinal research project conducted by agricultural education staff in the Department of Continuing and Vocational Education, University of Wisconsin--Madison.

The first report in this series provided the background, the theoretical foundation, and the direction for subsequent research efforts within the framework of this project.

The major purpose of this document is to examine the professional competencies post-secondary and secondary school agricultural instructors need and possess.

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Introduction

The purpose of this longitudinal research project is to identify the functions, tasks, and competencies needed to enter and continue in selected agricultural occupations with the implications of developing relevant vocational agricultural curricula in Wisconsin's secondary and post-secondary schools; and the revision and/or development of teacher education curriculum to ensure appropriate in-service and pre-service educational programs for vocational agricultural instructors.

The research reported in this document deals with only a small but very important portion of this project. The major purposes of this research are to identify and compare the professional competencies needed by and possessed by post-secondary and secondary school agricultural instructors and to compare their perceptions regarding whether these competencies should be developed in their pre-service and/or in-service educational programs.

Background

Basically, three separate but interdependent phenomena have focused the need for data generated from this research. These are the changes in the field of agricultural education, the development of a new Department of Continuing and Vocational Education, and a need to evaluate the teacher certification requirements.

Changes in Agriculture Education

Since the passage of the 1963 Vocational Education Act and the 1968 Amendment to this Act, considerable change has taken place in both the post-secondary and secondary school agricultural programs. During the past decade, the agricultural programs being offered by the post-secondary schools have increased both in variety and in number. Enrollments have increased more than ten times during this period of time with the teaching staff being increased accordingly.

The agricultural education offering in the secondary schools has also undergone considerable change during the past ten years. Enrollment and staff increases, however, have not been of the magnitude of that found in the post-secondary schools. There has been one change uniquely found in the secondary schools; that is, the nature of the clientele being served has changed considerably. Today there are 1,915 girls enrolled in agriculture compared to 29 girls in 1965. Also, the number of urban students has increased from 2,427 in 1965 to 8,127 in 1974.[1)]

The New Department in Continuing and Vocational Education

Effective July 1, 1974, the Department of Continuing and Vocational Education will be formed by joining the existing Department of Agricultural and Extension Education with other units of vocational and continuing education on the Madison campus.

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1) For a more complete explanation of this topic see Report #1.

In anticipation of the new entity, a curriculum committee was appointed approximately two years ago to deal with curricular issues and to provide the new Department with direction in the revising and/or developing of the curricular offerings. Obviously, questions regarding the level and areas of competence students should possess when leaving a degree program have occurred quite frequently. Unfortunately, very little data are available to assist in answering these questions.

Teacher Certification

As changes in program and clientele occur in the field of agricultural education, it seems logical that a change would also occur in the types of competencies and degree of competence a teacher must possess. The question that is germane to the preparation of prospective teachers is, "Do the certification requirements reflect the changes which have been and will be occurring in the field?" The basic assumption underlying the need for certification requirements is that these requirements guarantee that individuals entering the teaching profession would at least meet minimum standards of quality.

Certification requirements in Wisconsin have become the domain of a state agency other than the University where teachers are prepared. Unfortunately, the procedure for developing certification requirements has become rather bureaucratic in nature. Serious questions can be raised as to whether these requirements reflect the changes which are taking place in the field. Another

characteristic of teacher certification requirements which may make them less effective is that they are usually stated as courses and experiences in which students must enroll or participate. Very seldom do these requirements mention the types of competencies or degree of competence prospective teachers should possess. This factor has caused some states to convert and/or consider converting to competency-based teacher certification.[1]

Statement of the Problem

Changes in agricultural education, formation of the new Department, and the competency-based teacher certification movement all give rise to a common set of questions. Some of these questions are: What professional competencies should a vocational agricultural instructor possess before he begins to teach? What additional competencies and/or degree of competence should a teacher acquire after becoming employed? Do secondary and post-secondary school vocational agricultural instructors need the same competencies and/or the same degree of competence? What competencies and level of competence for each of these competencies do instructors presently possess?

The major purpose of this study is to identify and compare the competencies needed by and possessed by secondary and post-secondary school agricultural instructors and to determine whether these competencies should be developed in their pre-service and/or in-service educational programs.

Objectives

The objectives of this research are:

1. to identify and compare the professional competencies needed by secondary and post-secondary agricultural instructors.
2. to compare secondary and post-secondary school instructors' perceptions of their present level of competence for each professional competency to be identified in Objective 1.
3. to compare responses made by secondary and post-secondary instructors regarding whether a competency should be emphasized in their pre-service and/or in-service educational programs.
4. to relate responses made by the instructors in the above two Objectives.
5. to relate responses made by the secondary and post-secondary instructors in Objectives 1, 2, and 3 to the following independent variables:
   a. employment situation,
   b. educational background,
   c. occupational experience.

Hypotheses

To facilitate the analyses of these data, the following null hypotheses were formulated:

1. There is no difference between secondary and post-secondary school instructors' perceived level of competence for each professional competency.

2. There is no difference between the secondary and post-secondary school instructors' opinions regarding whether specific competencies should be emphasized in their pre-service and/or in-service educational programs.
3. There is no relationship between the instructors' perceived level of professional competency and the following independent variables:
   a. employment situation,
   b. educational background, and
   c. occupational experience.
4. There is no relationship between the instructors' opinions regarding whether specific competencies should be emphasized in their pre-service and/or in-service educational programs and the following independent variables:
   a. employment situation,
   b. educational background, and
   c. occupational experience.

Research Design

The procedures followed in the development and implementation of this study were categorized under two major headings. These are instrument construction and source of data.

Instrument Construction

Identification of Competencies - During the initial stage of this study, the researchers made a review of the literature to determine

what research had been conducted regarding the identification of professional competencies needed by vocational educators and/or by vocational agricultural instructors. Some of the studies encountered which had dealt with the identification of professional competencies were conducted by Crawford,[2] Cotrell,[3] Feck,[4] Huddleston,[5] and Erpelding.[6] Through the process of gleaning these and other competency research studies and professional writings, a list of 416 different, but in many cases quite similar, competencies were identified. The researchers then proceeded to deductively refine, revise, combine, and ultimately develop a list of competencies which they believed to be comprehensive yet manageable for this research effort. These competencies were then organized by tasks and the tasks by functions.[2)] This resulted in a list of 11 functions, 39 tasks, and 121 competencies.[3)] To further refine and adapt this list of competencies to the conditions in Wisconsin, a panel of experts was formed. This panel was comprised of twelve individuals: four members had expertise in the post-secondary school agricultural programs (two state consultants and two instructors who had taught agriculture at the post-secondary level); four members possessed expertise in the secondary school agricultural programs (two state consultants and two instructors who had taught in high school vocational agriculture); and four members possessed knowledge of and interest in both program areas (teacher educators).

[2)] See page 15 for defintions of these terms.

[3)] Appendix A included this list of functions, tasks, and competencies.

Each panel member was instructed to make an independent[4] judgment as he rated each of the 121 competencies as having "no importance, little importance, average importance, above average importance, or great importance" for the group he was representing.

Since the major purpose of the panel was to identify a list of competencies which were important for all vocational agricultural instructors in Wisconsin, the next operation was to determine if there was a significant difference among the responses made by the three groups comprising the panel. To accomplish this operation, the previously mentioned alternative responses (nominal scale) were assigned numbers 1 through 5, respectively. A mean score reflecting the responses made by each group for each competency was calculated. A one-way analysis of variance for each competency was calculated to determine if any one group placed more or less emphasis on any particular competency than did the other two groups. An analysis of the 363 tests (Each group was paired with each other; thus 121 x 3 = 363 tests) was as follows:

1. A significant difference was found in only seven tests.
2. No significant difference was found between the responses made by the secondary school instructors and the teacher educators.
3. The post-secondary instructors significantly disagree with the secondary school instructors four times and with the teacher

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[4] The panel members were asked to respond to the questionnaire independently based on the major assumption underlying the Delphi Technique; that is, this process prevents professional status, professional position, or any other social or political factor from influencing the judgment made by an individual panel member.

educators three times. In all cases, the post-secondary instructors placed greater importance on a particular competency than did the secondary school instructors or teacher educators.

Since the number of differences found in this analysis was less than two percent (which, in fact, could have happened by chance), the researchers felt that the responses made by the three groups could be combined for future use and/or statistical analysis.

The next task in developing the questionnaire was to eliminate those competencies that were judged by the panel as having least importance. This was accomplished by comparing the mean response made by panel members for a particular competency with the mean response (grand mean) they gave for all the competencies. The grand mean for all the competencies was 3.91. The researchers decided to eliminate any competency from the questionnaire which obtained a mean response more than one-half of a standard deviation (.14) below the mean. Thus any competency with a mean response less than 3.74 was eliminated. Appendix A includes those competencies which were eliminated from the original list.

Instrument Validity - Validity is the degree to which an instrument is measuring what it was intended to measure.

Thorndike[7] indicates that the American Psychological Association has classified instrument or test validity under three major headings. These are criterion-related validity, content validity, and construct validity. Primarily based on the American Psychological Association's definitions, Thorndike defines these terms as follows:

> Criterion-related (predictive) validation compares test scores, or predictions made from them with an external variable (criterion) considered to provide a direct measure of the characteristic or behavior in question.
>
> Content validity is evaluated by showing how well the content of the test samples the class or situations or subject matter about which conclusions are to be drawn.
>
> Construct validity is evaluated by investigating what psychological qualities a test measures; i.e., by determining the degree to which certain explanatory concepts or constructs account for performance on the test.

Probably the most common method of determining the validity of an instrument such as the one used in the study would have been to observe a number of secondary and post-secondary instructors on their jobs and interview their immediate supervisors regarding the tasks their teachers performed and the competencies they needed. A number of reasons precluded the use of this approach. First, the researchers believed that an appreciable amount of empirical research had been done that had basically identified the competencies included in this study. For example, Crawford,[2] Cotrell,[3] Feck,[4] Huddleston,[5] and Erpelding[6] dealt with all three types of validity when developing their research instruments. In addition, the result of their studies provided information regarding what professional competencies should be included in this study (content validity). Second, the researchers felt the panel of experts provided additional credence to the validity of this instrument. Their knowledge of the profession and of the individuals presently in the profession placed them in a position of verifying both the content and construct validities of this instrument. Third, the researchers wanted to include all post-secondary

and secondary school instructors in their investigation. This would have meant testing this instrument in another state where conditions would have been quite different.

Thus, based on these three premises or conditions, the researchers were confident that all possible steps were taken to assure the validity of this instrument.

Instrument Reliability - A test or scale is reliable if it consistently yields the same results when repeated measurements are taken of the same subjects under the same conditions.[8]

The major reliability question encountered by the researchers was determining which set of responses to use when computing reliability of the questionnaire. That is, should the jury responses that contributed to the final draft of the questionnaire be included in the calculation or should the vocational agricultural instructors' responses to this questionnaire be included? It was decided that a post-factum reliability test would be conducted on the responses made by each of these groups.

ITEMPACK[9] is the name of the specific computer program the researchers selected to test for reliability. This program was selected because it was developed specifically for use with Likert-type scales and provided Cronbach's coefficient alpha.[10] ITEMPACK uses Cronbach's alpha as a measure of internal consistency. Cronbach's alpha is mainly an elaboration of the Kuder-Richardson's "20." Both tests employed the split-halves method of calculating reliability. The split-halves method randomly divides the items of an instrument into halves resulting in two instruments that are

very much alike including all human-related circumstances of administering the instrument. The results of calculating a correlation coefficient between halves are a reflection of the reliability of half of the instrument.[11]

Although varying with the circumstances, Cronbach's alpha of .70 or above is considered an acceptable level for internal consistency of reliability. The Cronbach's coefficient alphas for each of the eleven functions of the respondent groups[5)] are included in Table 1. These data indicated that in 43 of 44 instances, the Cronbach's alpha exceeded the .70 level. Since the alpha for the post-secondary production agriculture instructors' responses to the instruction-evaluation function is only seven thousands of a point from the desired value, the researchers considered the items under this function to be reliable also. Thus, all competencies were considered to be adequately reliable to be included in subsequent analyses.

Source of Data

As previously described, the major sources of data, prior to instrument development, were the literature and a panel of experts. Once the questionnaire was developed, the primary source of data was the post-secondary and secondary school vocational agricultural instructors in Wisconsin. Presently, there are 313 secondary school instructors, 72 post-secondary instructors teaching in production

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5) The post-secondary respondents were classified as production instructors and nonproduction instructors (according to the program in which they teach) because they will be placed in these categories for subsequent analysis.

TABLE 1 Cronbach's Alpha Coefficient of Internal Consistency for Each Function by Respondent Group

Function	Jury	All Respondents	Post-Secondary Instructors		Secondary Instructors
			Production	Nonproduction	
Curriculum planning, development, and evaluation	.8185	.8131	.7940	.8017	.8151
Instruction planning	.8827	.8800	.9365	.9263	.8373
Instruction execution	.8098	.8408	.8109	.7703	.8394
Instruction evaluation	.9538	.7882	.6993	.7541	.8048
Management	.7089	.9141	.9057	.8596	.9135
Guidance	.9470	.8891	.8907	.8948	.8711
School community relations	.8476	.8981	.9043	.9353	.8966
Student vocational organizations	.8215	.9434	.9813	.9442	.8961
Professional roles and development	.8504	.8879	.9190	.7841	.8671
Coordination	.9464	.9176	.9280	.9116	.9126
Advisory committee for vocational education in agriculture	.9414	.9397	.9628	.9321	.9337

agriculture, and 50 post-secondary instructors teaching in non-production agriculture.

Since the researchers believed it to be beneficial to acquire data from as many instructors as possible, all of the above mentioned agricultural instructors were included in this study. For subsequent statistical analyses, each group mentioned above was considered as a "sample in time" for the particular area they represented.

A mail questionnaire was sent to each of the 435 vocational agricultural instructors. A reminder post card was sent to non-respondents approximately three weeks later, followed by another copy of the questionnaire six weeks after the first mailing.

The number and percent of instructors responding to this questionnaire by group are included in Table 2.

TABLE 2

Number and Percent of Agricultural Instructors Returning Usable Questionnaires

	Secondary		Post-Secondary			
			Production		Nonproduction	
Agricultural Instructors	N	%	N	%	N	%
Number responding	194	63.5	46	63.9	24	48.0
Number sent questionnaires	313	100.0	72	100.0	50	100.0

These data indicated that nearly two-thirds of the secondary school and post-secondary production instructors responded to the questionnaire. Less than one-half (48.0%), however, of the post-secondary nonproduction instructors returned completed questionnaires. Since these totals were relatively low, the researchers compared four characteristics of the respondents and nonrespondents for each of the three instructor groups to determine if the respondents and non-respondents were, in fact, significantly different. The characteristics (variables) involved in this comparison follow. (1) Employment status - Did more respondents or more nonrespondents possess full-time or part-time employment? (2) Baccalaureate degree - Did more respondents or nonrespondents possess B.S. degrees in agricultural education? (3) Master's degree - Did more respondents or non-respondents possess M.S. degrees in agricultural education? (4) Teaching experience - Did respondents or nonrespondents have more years of teaching experience in vocational agriculture?

A statistical analysis of these comparisons revealed that the respondents and nonrespondents of all three groups were not significantly different in eleven of twelve tests computed. The only instance where a difference occurred was significantly more secondary school respondents possessed master's degrees in agricultural education than did the non-respondents.

Since the major task of a respondent in this study was to assess his competency level and indicate when a particular competency should be developed (pre-service or in-service), the researchers perceived the possession of a master's degree in agricultural education as an

asset in conducting this task. Thus, the fact that more secondary respondents than nonrespondents possessed master's degrees in agricultural education was perceived a positive rather than a negative factor.

Based on this premise and the above findings, the researchers concluded that there was basically no difference between the respondents and nonrespondents. What little difference did occur was perceived as strengthening rather than weakening the data collected in this study.

Definition of Terms

The operational definitions of terms or concepts frequently used in this publication are defined as follows.

1. FUNCTION: A process consisting of a number of tasks which contribute to the overall success, operation, and continuance of an occupational area.
2. TASKS: A group of related operations which are performed in the execution of a given function of an occupational area.
3. COMPETENCY: Behavioral characteristics of knowledge, skills, attitudes, and judgment generally required for the successful performance of a task(s).
4. COMPETENCE: Competence is the degree or level of competency possessed by an individual.
5. PRE-SERVICE TRAINING: Organized learning experiences provided for or available to prospective vocational agricultural instructors to prepare them for future employment opportunities.

6. IN-SERVICE TRAINING: Organized learning experiences provided for or available to individuals employed as vocational agricultural instructors.
7. POST-SECONDARY PRODUCTION AGRICULTURAL INSTRUCTORS: Post-secondary agricultural instructors in vocational-technical education reported to be spending one-half (50 percent) or more time with farm training and/or production agricultural teaching responsibilities.
8. POST-SECONDARY NONPRODUCTION AGRICULTURAL INSTRUCTORS: Post-secondary agricultural instructors in vocational-technical education reported to be spending one-half (50 percent) or more time with nonproduction agricultural (agribusiness) or environmental health teaching responsibilities.
9. SECONDARY AGRICULTURAL INSTRUCTORS: Secondary school agricultural instructors were those individuals teaching vocational agriculture in the public secondary schools in Wisconsin.

Presentation of Data

The purpose of this section is to present and to analyze data that would support or fail to support the four major hypotheses of this study. To facilitate this analysis, these data were organized and subsequently analyzed under three major headings. The first heading included data pertaining to hypotheses one and two. The second heading included data relating to hypotheses three and four. The third heading included a summary of data presented under the first two headings.

Competencies Possessed by Vocational Agricultural Instructors and When They Should be Developed

Data presented under this heading were related to the following two null hypotheses:

1. There is no difference between secondary and post-secondary school instructors' perceived level of competence for each professional competency.
2. There is no difference between the secondary and post-secondary school instructors' opinions regarding whether specific competencies should be emphasized in their pre-service and/or in-service educational programs.

Each of the respondents was asked to rate his degree of competence for each of the 89 competencies included in the questionnaire according to the following scale: (1) no competence, (2) little competence, (3) average competence, (4) above average competence, and (5) high degree of competence. The responses the instructors made to this question provided data for the first hypothesis.

The respondents were then asked to indicate when they believed each of the 89 competencies should be presented in the instructional program. The scale provided for their responses was: (1) very important for in-service, (2) important for in-service, (3) important for in-service and pre-service, (4) important for pre-service, and (5) very important for pre-service. The responses made for this question were used for testing the second hypothesis.

A one-way analysis of variance was employed to determine if a statistically significant difference existed between the responses made by the secondary agricultural instructors, post-secondary production instructors, and the post-secondary nonproduction instructors.

The presentation and analysis of these data were made for each hypothesis by function.

Curriculum Planning, Development, and Evaluation - The following two tasks and nine competencies were included in the analysis of data for this function.

A-1 Plan a Vocational Education Curriculum in Agriculture

1. Collect curriculum information through a vocational-technical education survey in agriculture.
2. Collect student background information and occupational interest data to identify vocational-technical education in agriculture curricula needs.
3. Write objectives for a program offered in the vocational-technical education curriculum in agriculture (based on students' needs and the survey information).
4. Identify the content areas such as beef, dairy, taxes, etc., to implement program objectives.
5. Organize content areas based on priorities regarding the time and resources available.
6. Determine the long-range curriculum needs for the vocational-technical education department in agriculture.

A-2 Evaluate a Vocational-Technical Education Curriculum in Agriculture

7. Maintain continual follow-up information on the placement, employment, and further education of each graduate of the vocational-technical education program in agriculture.
8. Determine to what degree the objectives of the vocational-technical education programs in agriculture have been accomplished.
9. Assess the relevancy of the program objectives and course offerings of the vocational-technical education program in agriculture.

An instructor's ability to plan, develop, and evaluate a curricular offering is the foundation to any successful instructional program. Data in Table 3 (Appendix C)[6] revealed that the respondents in all three groups[7] perceived themselves as having average to above average competence for all nine competencies.

A significant difference did occur, however, among the responses made for competencies one, two, and nine.[8] In all three instances

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6) All tables related to this heading will be included in Appendix C.

7) Henceforth, the term three groups or respondent groups will refer to the secondary agricultural instructors, the post-secondary production instructors, and/or the post-secondary nonproduction instructors that returned usable questionnaires.

8) Since the competencies for each function will be stated prior to the analysis of the data, competencies will be referred to by their respective numbers to avoid unnecessary redundancy.

the post-secondary instructors indicated they had more competence than the secondary instructors in collecting and using information for curriculum development and in assessing the relevancy of program objectives and course offerings. The same trend between secondary and post-secondary responses also existed for the remaining six competencies. At the post-secondary level, the nonproduction instructors perceived themselves slightly more competent than the production instructors.

No significant difference occurred among the three groups regarding when these nine competencies should be presented in the instructional program. Although no statistically significant difference was recorded, the post-secondary nonproduction instructors had a tendency to emphasize in-service training more than the other two groups. The greatest variation observed within the data was not found among the groups, but rather the emphasis all groups placed on various competencies. For example, they emphasized pre-service training more for the first four competencies; whereas, they emphasized in-service more for competencies seven through nine.

Instruction Planning - The four tasks and eleven competencies comprising this function were:

B-1 Structure a Course

10. Review the program objectives and select the appropriate objectives for the course.
11. Sequence the course objectives.

B-2 Design a Course Unit

12. Identify the unit topics for a course.

13. Determine student needs and goals for course planning.
14. Develop objectives and lesson topics for a unit.
15. Correlate unit content with on-the-job and/or laboratory experiences.
16. Determine group and individual learning experiences for a unit based on individual differences of students.

B-3 Plan a Lesson

17. Identify the specific behavioral objectives for a lesson.
18. Determine time needed and select the appropriate teaching methods for a lesson.
19. Provide for student learning experiences consistent with the lesson.

B-4 Select Instructional Resources

20. Select the appropriate teaching aids for the most effective presentation of the lesson with adequate prechecking for performance of the aids.

There was more significant difference among responses made by the three groups regarding their levels of competence for the competencies in this function than any of the other ten functions. Significant difference was found for nine of the eleven competencies. Competencies 11 and 12 were the only competencies where significance did not occur. The data in Table 5 also revealed that the post-secondary respondents perceived themselves to be more competent than the secondary respondents for all these competencies. Once again, the nonproduction instructors rated themselves higher than the production instructors. An important observation, however, is that even though

the secondary group rated themselves lower than the other two groups, their mean response fell between average to above average competence. The nonproduction instructors, however, generally considered themselves to possess above average competence.

Although the three groups reported different competence levels for these competencies, there was general agreement (no significant difference) among the groups regarding when these competencies should be developed. Data in Table 6 reveal that the respondents placed nearly equal emphasis on pre-service and in-service training. Once again, the post-secondary nonproduction instructors had a tendency to place more emphasis on in-service training than the other two groups.

Instruction-Execution - This function included the following two tasks and six competencies:

C-1 Direct Student Activity

21. Conduct and utilize a variety of teaching methods for instructing students in groups.
22. Utilize a variety of teaching methods for providing students with individualized instruction.

C-2 Apply Basic Instructional Strategies

23. Utilize and implement the lesson plan.
24. Employ a variety of strategies to ensure the instruction meets individual student needs.
25. Be aware of and use appropriate learning principles in the instructional process.
26. Utilize instructional activities which assist the vocational development and maturity of the students.

The respondent groups reported significantly different competence levels for four of the six competencies (see Table 7). The pattern established for the previous two functions prevailed once again. That is, the post-secondary instructors rated themselves higher than the secondary instructors; and at the post-secondary level, the non-production respondents generally rated themselves higher than the production respondents. In any case, the mean response for the secondary group fell within the average to above average range; whereas, the nonproduction instructor responses were more frequently "above average."

For the third consecutive function, no significant difference was obtained among the respondent groups regarding when the competencies should be included in the instructional program (Table 8). Also, there was no appreciable variation from one competency to another. Although the three groups tended to emphasize pre-service slightly more than in-service, they mainly felt that these competencies should be emphasized equally in these two programs.

Instruction-Evaluation - The following three tasks and four competencies were included in this function:

D-1 Evaluate Performance of Students

27. Determine the sources and types of evidence needed upon which to make a student evaluation.
28. Judge the students' performance or products in relation to instructional goals.

D-2 Develop Tests and Rating Sheets

29. Develop objective tests.

D-3 Evaluate Quality of Instruction

30. Review student progress and/or achievement records to assess suitability of instruction.

A significant difference was encountered among the responses made by the three groups for competencies 29 and 30 (see Table 9). Although the pattern established for the first three functions prevailed for competency 30, this was not the situation for competency 29. For this competency, the post-secondary production respondents rather than the secondary respondents rated themselves the lowest. The post-secondary nonproduction instructors, however, continued to rate themselves the highest of all three groups. Once again, the mean response for all groups ranged from average to above average.

There was no significant difference among the responses these groups gave regarding when these competencies should be developed. The trend established in the previous functions prevailed once again; that is, the respondents slightly favored pre-service training but mainly indicated that these competencies should be equally emphasized in both in-service and pre-service training.

Management - The five tasks and eleven competencies in this function were as follows:

E-1 Project Instructional Resource Needs and Prepare Budgets

31. Identify and compile a list of consumable supplies needed in a vocational-technical education in agriculture course and/or program for the academic year.

32. Recommended reference books and periodicals related to vocational-technical education in agriculture that should be added to the library.

E-2 Maintain Records and Filing System

33. Devise and maintain a functional filing system for instructional materials, records, report forms, and pertinent departmental data.

34. Develop and maintain individual student files including grades and vocational and personal information in accordance with school policy.

E-3 Provide for Safety of Students in the Shop and/or Laboratory

35. Propose guidelines covering approved safety apparel and devices for vocational-technical students using hazardous equipment.

36. Establish a procedure for attending to first aid needs of vocational-technical students.

37. Maintain a record of safety instruction presented in compliance with safety laws and regulations.

E-4 Control Student Behavior

38. Formulate with students acceptable standards of behavior in accordance with school policy.

39. Identify causes of student discipline problems.

40. Decide upon and carry out disciplinary action when warranted.

E-5 Maintain the Shop and/or Laboratory

41. Establish a system for inventorying, repairing, servicing, storing, and securing supplies and equipment in the shop and/or laboratory.

This was the first function where no significant difference was found among the three groups regarding their perceived competence levels for each of these competencies (Table 11). All respondent groups more frequently rated themselves "above average" rather than "average." In addition, there was no appreciable variation from one competency to another.

Data in Table 12 revealed that a significant difference existed among the three groups regarding when competencies 31, 32, 38, 39, and 40 should be included in the instructional program. For all competencies, the post-secondary nonproduction instructors placed less emphasis on pre-service training than did the other two groups. These instructors indicated that the competencies should be equally emphasized in the pre-service and in-service programs. In contrast, the secondary and post-secondary production respondents placed more emphasis on pre-service than in-service training for these competencies.

Guidance - A teacher has always had and will probably continue to have some responsibility for the guidance function in the school system of his employment. The five tasks and ten competencies identified for this function were:

F-1 Obtain Background Information on Students

42. Secure information from permanent records and other reliable sources to use when counseling students.

F-2 Promote Constructive Interrelationships with Students

43. Develop positive relationships with students to establish rapport and gain their confidence.

44. Counsel students periodically concerning the progress toward their occupational objectives.

45. Advise students of the qualifications necessary for entrance and/or continuance in different agricultural occupations.

F-3 Counsel Students

46. Recognize potential problems of students.

F-4 Involve Resource Persons and Agencies in Assisting Students

47. Establish and maintain a professional relationship with the guidance counselor and other teachers.

F-5 Assist Students in Planning Post-Secondary Education and/or Employment

48. Assist students in obtaining employment and/or enrolling in a post-secondary educational program of their choice.

49. Conduct follow-up studies of each agricultural student at periodic intervals to determine his progress toward his career goal.

50. Present information to students on occupational opportunities.

51. Present information to students on post-secondary training and educational opportunities available to them.

A significant difference among the responses made by the three groups was found for only competency 42 (Table 13). The post-secondary production instructors expressed significantly more competence in "securing information from permanent records and other reliable sources to use for counseling students" than did the other two groups. In fact, the post-secondary production instructors rated themselves

higher than the secondary instructors for all competencies and higher than the post-secondary nonproduction instructors for all but two of the competencies. The mean responses for all groups, however, revealed that the instructors believed they had better than average guidance ability.

Data in Table 14 indicate that the post-secondary production instructors' opinions regarding when the guidance competencies should be included in their instructional programs were somewhat different from the opinions of the other two groups. These instructors stated that all guidance competencies should receive greater emphasis in the pre-service than the in-service programs. The other two instructor groups, however, believed that these competencies should receive relatively equal emphasis on the in-service and pre-service programs. The difference of opinion among these groups was statistically significant for only competency 51.

School-Community Relations - A predominant contemporary concern of public school administrators is the maintenance of a positive relationship between the school and the public it wishes to serve. Traditionally one of the best public relations agents within the public school has been the vocational education instructors in agriculture.

The four tasks and seven competencies these instructors need to perform this function were:

G-1 Plan and Publicize the School-Community Relations Activities of the Vocational Program

52. Plan the school-community relations activities for vocational-technical education in agriculture which assist in and enable public awareness of the educational program.

53. Conduct the planned community relations program through the various media to the appropriate public.

G-2 Maintain Good Community Relationships

54. Sponsor activities to familiarize students, parents, and members of the community with the program.

55. Provide liaison with community groups, services, and interests to the vocational-technical education program in agriculture.

G-3 Obtain School-Community Feedback on the Vocational-Technical Program in Agriculture

56. Obtain formal/informal feedback on the vocational-technical education program in agriculture from the community power structure, parents, students, and school officials.

G-4 Maintain Good Intraschool Relationships

57. Maintain working relationships with the faculty, administration, and supporting school staff through cooperation and mutual effort.

58. Attend faculty meetings, departmental meetings, and meetings of special committees.

This function was uniquely different from the previous functions in that no one group consistently indicated it had more competence than the other two groups. As might be anticipated, all groups perceived themselves as having more than average ability for all of the school-community relations competencies. A significant difference was encountered in only competency 56 where post-secondary instructors rated themselves higher than the secondary instructors.

There was unanimous agreement among the three instructor groups that these competencies should be equally emphasized in their pre-service and in-service educational programs (Table 16).

Student Vocational-Technical Organizations - For more than 45 years, a youth organization has been an integral part of the secondary school vocational agricultural program. Recently, many agricultural instructors at the post-secondary level have initiated or have considered the initiation of a student organization. The three tasks and six competencies included in this function for this study were:

H-1 Establish a Student Vocational-Technical Organization

59. Acquaint prospective members and/or their parents with the purposes, activities, and values of the student vocational-technical organization.
60. Assist in the development and/or modification of a student vocational-technical organization.

H-2 Maintain a Student Vocational-Technical Organization

61. Assist in the planning and conducting of the activities of the organization.
62. Maintain the student vocational-technical organization as an integral part of the instructional program.
63. Evaluate the student vocational-technical organization.

H-3 Participate in Activities of the State and National Student Vocational-Technical Organization

64. Assist students in participating in district, state, regional, and national contests and activities.

Data for this function (Table 17) revealed that although the instructor groups did not rate their levels of competence significantly different for any of these competencies, the secondary instructors consistently rated themselves higher than the post-secondary instructors. Nevertheless, instructors in all three groups believed they possessed better than average ability for all of these competencies.

A significant difference did occur among these groups regarding when competencies 63 and 64 should be included in the instructional program (Table 18). This difference was provided by the post-secondary production instructors. These instructors contended that all competencies in this function, not only competencies 63 and 64, should be emphasized more in the pre-service than the in-service programs. The secondary and post-secondary nonproduction instructors, however, placed nearly as much emphasis on in-service as they did pre-service programs.

Professional Role and Development - What is professionalism? Is it professional to join a teachers' union? Is it professional to strike? What competencies should be included in a teacher's professional preparation?

The professional tasks and competencies perceived to be important for the professional development of vocational education instructors in agriculture were:

I-1 Uphold Philosophy and Goals of the Profession

65. Develop and express a philosophy of vocational and technical education that is consistent with the goals of the teaching profession.

66. Maintain ethical standards expected of a professional educator in agriculture.

67. Exchange observational visits, innovations, and ideas with other teachers.

I-2 Contribute Professional Service

68. Support and serve professional organizations as a member, an officer, or on committee assignments.

69. Contribute to knowledge in the field by writing an article for a journal, assisting in research, or securing data.

I-3 Advance One's Professional Competencies

70. Improve professional capabilities and certification status through a planned professional improvement program (such as in-service, graduate work, institutes, and readings).

71. Develop and implement a systematic self-evaluation program that provides insight into the technical-professional competencies required.

Data in Table 19 revealed that the respondent groups rated their degrees of competence significantly different for competencies 65, 67, 68, 69, and 71. This difference was more evident for competency 69 where each instructor was asked to rate his ability to contribute knowledge in the field by writing an article for a journal, assisting in research, and securing data. The post-secondary instructors in all instances perceived themselves as possessing more competence for all the competencies than did the secondary instructors.

There was complete agreement among the instructor groups, however, regarding when these competencies should be included in their instructional program. Any difference which occurred was present among the competencies rather than among the respondent groups. For example, collectively the instructors placed greater emphasis on pre-service than in-service for competencies 65 and 66; whereas, they placed equal value on pre-service and in-service for the remaining five competencies.

Coordination - An instructor's ability to coordinate the many activities in a comprehensive vocational agricultural program has always been a crucial measure of his ability to succeed. Today, with the continual changes in the labor market, changes in the clientele being served, and subsequently changes in the program offerings, the instructor's coordinating ability is even more important than it has been in the past. The tasks and competencies included in this study which were deemed important for the coordination of a vocational education program in agriculture were:

J-1 Administrative Coordination

72. Inform the school administration of departmental activities.
73. Inform the faculty and staff of departmental activities.
74. Inform the community residents and area agencies of departmental activities.

J-2 Coordination of Production Agricultural Occupation Experience Programs

75. Assist students with identifying and planning appropriate projects.

76. Assist students to develop an appropriate record system for production projects.

77. Make instructional visits to students concerning their projects.

J-3 Coordination of Nonproduction Agricultural Occupation Experience Programs

78. Identify, select, and prepare students for training stations.

79. Identify and secure appropriate training stations.

80. Integrate activities of training stations with curricular learning experiences.

81. Develop and utilize training agreements with employers.

82. Place students in appropriate training stations.

An analysis of data in Table 21 revealed a significant difference among the three groups regarding their perceived degrees of competence for competencies 77 through 82. In all cases, the post-secondary instructors rated themselves considerably higher than did the secondary instructors. At the post-secondary level, the production instructors consistently perceived themselves to be more competent than the non-production instructors.

Instructors in all three groups indicated that they possessed "above average" competence for competencies 72 through 77 categorized under the "administration coordination" and "coordination of production agricultural occupational experience program" tasks. This was not the situation, however, for the competencies included in the "coordination of nonproduction agricultural occupation experience program" task.

In this task, only the post-secondary instructors reported an "above average" competence level; whereas, the secondary instructors indicated an "average" competence level.

A significant difference was also found among the three groups regarding when competencies 78, 80, 81, and 82 should be included in their instructional programs (Table 22). This difference was mainly provided by the post-secondary production instructors who emphasized pre-service more than in-service for all four of these competencies. In contrast, the post-secondary nonproduction and secondary instructors placed equal emphasis on the pre-service and the in-service programs. A consensus existed among all instructor groups that competencies 72 through 77 should also receive equal emphasis in their pre-service and in-service educational programs.

Advisory Committee - Since the passage of the 1963 Vocational Education Act and the 1968 Amendment to this Act, Wisconsin vocational agricultural instructors have been required to establish and use a local advisory committee.

The seven principle competencies instructors should possess to establish and maintain an advisory committee effectively are:

K-1 Establish an Advisory Committee

83. Identify the role and function of the advisory committee.
84. Obtain school board authorization for organizing the advisory committee.
85. Obtain administrative approval of the selected members for participating on the advisory committee.

K-2 Maintain an Advisory Committee

86. Orient the advisory committee members to their roles and functions.

87. Publicize the establishment of the advisory committee, its members, and its function to the school and community.

88. Communicate the date, place, and agenda for the advisory committee meeting to all persons concerned.

89. Utilize the advisory committee in the planning, conducting, and evaluating of vocational-technical education programs in agriculture.

Considerable agreement existed among the three groups regarding their levels of competence for the advisory committee competencies (Table 23). The only exception was competency 89 where the post-secondary instructors, particularly the production instructors, reported having more competence than did the secondary instructors. In all instances, the respondents from all groups stated their degree of competence as average to above average for all seven competencies.

Although no significant difference existed among the three groups regarding when these competencies should be developed in their educational programs, an important pattern of responses did occur. For all competencies in this function, the post-secondary production instructors emphasized pre-service more than in-service; whereas, the post-secondary nonproduction instructors responded in the reverse manner (in-service over pre-service). The secondary instructors, however, placed nearly equal emphasis on pre-service and in-service educational programs.

Relationship Between the Independent and Dependent Variables

Null hypotheses three and four guided the analysis of data presented in the following section. These two hypotheses basically stated that there is no relationship between the two dependent variables and the three independent variables.

The three major independent variables and their respective subvariables included for study in this research were:

1. Employment situation
    a. employment status
    b. teaching load
2. Educational background
    a. degrees in agricultural education
    b. student teaching or internship experience
    c. professional improvement
3. Occupational experience
    a. teaching experience in agriculture
    b. production agricultural experience
    c. nonproduction agricultural experience

The two dependent variables included for study were: (1) instructors' perceived level of professional competence, and (2) instructors' opinions regarding when specific competencies should be emphasized in their educational programs.

Three statistical tests were employed to prepare these data for analysis and presentation. A chi square or one-way analysis of variance was calculated to determine if a statistically significant difference existed among the three respondent groups regarding each

subcomponent of the three independent variables. A Pearson product moment correlation was calculated to determine the degree of relationship between the dependent and independent variables.

Employment Situation - The two components of this variable were employment status and teaching load.

Employment Status - Only 11 of the 264 (4.1%) of the respondents were employed part time (Table 25).[9] All nonproduction instructors were employed full time; whereas, 8.7 percent of the production and 3.6 percent of the secondary instructors were part time. No significant relationship existed between the instructors' employment status and the responses they made for the two dependent variables.

Teaching Load - A respondent's teaching load included all instruction in the classroom, the laboratory, as well as on the farm. Although there was no significant difference among the respondent groups regarding the number of hours they taught per week, the post-secondary production instructors spent slightly more time on teaching (30.5 hours/week) than did the secondary (28.0 hours/week) or post-secondary nonproduction (27.6 hours/week) instructors (Table 26).

A significant positive relationship existed between the nonproduction respondents' teaching load and their perceived competence levels for five of the eleven functions. These functions were: (1) instruction evaluation, (2) management, (3) guidance, (4) school and community relations, and (5) student organizations. This means that

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9) All tables for this section are in Appendix D.

the nonproduction respondents reporting the greatest degree of competence for these five functions also reported having the largest teaching loads.

The production respondents also indicated a significant positive relationship between their teaching load and their ability to manage an instructional program.

No significant relationship existed, however, between their teaching load and the eleven functions for the secondary instructors. There was a relatively strong negative relationship, however, between the secondary instructors' teaching load and the degrees of competence they expressed for the instruction evaluation and the curriculum planning, development, and evaluation functions. That is, the teachers expressing the highest degree of competence for these two functions also had the smallest teaching load. It is very likely the message these teachers were attempting to convey was that if they are heavily loaded with teaching responsibilities, they do not have enough time to perform or develop competencies to perform these two functions.

The respondent groups agreed that the teaching load was not related to their opinions regarding when competencies should be developed in their instructional programs.

Educational Background - What relationship does educational background have with an instructor's perceived competence level of the eleven professional functions? Does this variable influence his opinion regarding when professional competencies should be developed

in his instructional program? These questions guided the subsequent discussion of this variable.

Degrees in Agricultural Education - Although virtually all (97.8%) respondents had acquired a baccalaureate degree in agricultural education (Table 27), less than one-half of the respondents had obtained a master's degree in agricultural education. It was interesting that more post-secondary nonproduction respondents (58.3%) had agricultural education master's degrees than did the post-secondary production (43.5%) or secondary (41.2%) instructors.

The secondary and nonproduction respondents expressed a strong (significant) relationship between the possession of agricultural education degrees and their ability to develop and maintain an advisory committee. The secondary respondents also indicated a significant relationship existed between this subvariable and their ability to perform the instructional planning and guidance functions.

The production instructors, on the other hand, expressed the reverse position. A significant negative relationship was found between the number of production instructors possessing a master's degree in agricultural education and the degree of competence they expressed for six of the eleven functions. These functions were: (1) instructional planning, (2) guidance, (3) school and community relations, (4) professional role and development, (5) coordination, and (6) advisory committees. These findings imply that production instructors without master's degrees in agricultural education expressed a higher degree of competence for these six functions.

A consensus prevailed among the respondent groups that no significant relationship existed between the possession of an agricultural education master's degree and when the professional competencies should be developed in their instructional programs.

Student Teaching or Internship Experiences - Generally, one of the principal prerequisites for teaching certifications is the successful completion of a student teaching or internship experience. Consequently, it was surprising to find that slightly more than one-tenth of the respondents had not participated in a student teaching or internship experience (Table 29). Significantly more post-secondary nonproduction (25.0%) and production (19.6%) instructors than secondary instructors (6.2%) had not participated in this educational activity.

The secondary and post-secondary nonproduction instructors reported a significant relationship between their student teaching or internship experience and their ability to plan for instruction. In addition, the nonproduction respondents stated that this experience was directly related to their ability to evaluate (significant) and manage (nonsignificant) an instructional program. The production instructors also indicated a direct relationship existed between this experience and their ability to evaluate their instruction (nonsignificant).

Once again, no significant relationship was found between this subvariable and the respondents' opinions regarding when professional competencies should be included in their instructional programs.

Professional Improvement - The average number of professional education credits acquired by the secondary instructors was appreciably more (20.1) than the production instructors (16.8) and significantly more than the nonproduction instructors (14.2) (Table 30). When asked, "Have you participated in at least one professional education course or workshop for credit during the past three years?" slightly more than one-half of the instructors in each group responded affirmatively (Table 31). This was not the situation, however, regarding participation during the past three years in university-sponsored noncredit professional education activities. Considerably more production instructors (37.0%) participated than did the secondary (21.0%) or the nonproduction (8.3%) instructors (Table 32).

Approximately one-third of the secondary and post-secondary production instructors and one-fourth of the nonproduction instructors had participated in at least one technical agriculture course or workshop for credit during the past three years (Table 33). Significantly more production instructors (69.6%) than nonproduction (41.7%) or secondary (50.8%) instructors, however, had attended at least one noncredit university-sponsored course or workshop in technical agriculture during this period of time (Table 34).

The secondary and post-secondary nonproduction instructors indicated a significant relationship existed between the previously mentioned in-service activities and their ability to perform those competencies included in the professional role and development function. The secondary instructors reported a significant relationship

between these activities and their ability to establish and/or maintain a student organization. The production instructors reported that their in-service activities enhanced their ability to plan for instruction.

Collectively, the respondents reported no significant relationship between their in-service activities participation and when professional competence should be developed in their instructional programs. In all instances, however, the respondents that had participated the most in in-service educational activities placed greater emphasis on the development of professional competencies in an in-service rather than a pre-service educational program.

Occupational Experience - Does an instructor's experience in agricultural teaching, in production agriculture, or in nonproduction agriculture influence his opinions regarding his professional competence and when professional competencies should be included in his professional preparation? This question served as the major criteria for selecting data discussed under the heading of occupational experience.

Teaching Experience in Agriculture - The post-secondary production instructors had considerably more years (15.5) of agricultural teaching experience than the secondary instructors (11.3) and significantly more experience than the post-secondary nonproduction instructors (8.0) (Table 35). Agricultural teaching experience was significantly correlated with the secondary respondents' perceived level of competence for eight of the eleven functions. These functions were: (1) curriculum planning, development, and evaluation; (2) instructional planning; (3) instructional execution; (4) management;

(5) school and community relations; (6) professional role and development; (7) coordination; and (8) advisory committees.

No significant relationship existed between this subvariable and the perceived competence levels for the eleven functions for the other two respondent groups. The nonproduction instructors did indicate, however, a relatively strong relationship between this subvariable and their ability to perform the tasks included in the instruction execution and school and community relations functions. The production instructors, on the other hand, felt their agricultural teaching experience enhanced their ability to perform the competencies included in the professional role and development function.

A significant relationship existed between the years of agricultural teaching experiences of post-secondary nonproduction respondents and when they believed the competencies comprising the student organization and coordination functions should be included in their instructional programs. That is, the more experience an instructor had, the more emphasis he placed on in-service programs for the development of these competencies.

Production Agricultural Experience - Although the respondent groups did not differ significantly regarding the years of production agricultural experience, the production respondents had more years of experience (8.1) than did the secondary (6.2) and nonproduction (3.7) respondents (Table 35). The secondary instructors felt that their production agricultural experience assisted them considerably in their preparation of instruction.

The production instructors believed that this experience helped them with their coordination function.

The nonproduction respondents indicated a significant and/or a relatively strong negative relationship between this variable and their perceived degree of competence for five of the eleven functions. These were: (1) curriculum planning, development, and evaluation; (2) instruction evaluation; (3) management; (4) guidance; and (5) professional role and development. In other words, nonproduction instructors with the most production agricultural experience perceived their competence level to be lower for these five functions than did the instructors with the least production agricultural experience.

The secondary respondents recorded a significant relationship between production agricultural experience and when the professional competencies included in instructional evaluation and school and community relations functions should be developed in their educational programs. That is, the more production agricultural experience an instructor possessed, the more importance he placed on pre-service programs for the development of these competencies. Although no significant relationship did occur for the other two respondent groups, all correlations were negative rather than positive. This means that the more competence these respondents had for a given function, the more they stressed in-service programs for the development of the competencies in this function.

Nonproduction Agricultural Experience - As might be expected, the nonproduction respondents had appreciably more years (8.0) of nonproduction agricultural experience than did the production instructors (5.2) and significantly more than the secondary instructors

(2.0) (Table 35). A significant and/or a relatively strong relationship existed between the secondary instructors' nonproduction agricultural experience and their ability to perform the following four functions: (1) guidance; (2) school and community relations; (3) curriculum planning, development, and evaluation; and (4) instructional planning. That is, the secondary instructors with more nonproduction agricultural experience felt they could perform these functions more competently. The other two respondent groups did not significantly relate this subvariable to their ability to perform the eleven professional functions.

The respondents unanimously agreed that their nonproduction agricultural experience was not significantly related to when they believed professional competencies should be included in their instructional programs.

Summary

The major purpose of this study was to identify and compare the competencies needed by and possessed by secondary and post-secondary school agricultural instructors and to determine whether these competencies should be developed in their pre-service and/or in-service educational programs.

The four hypotheses guiding this investigation were:

1. There is no difference between secondary and post-secondary school instructors' perceived level of competence for each professional competency.

2. There is no difference between the secondary and post-secondary school instructors' opinions regarding whether specific competencies should be emphasized in their pre-service and/or in-service educational programs.
3. There is no relationship between the instructors' perceived level of professional competency and the following independent variables:
   a. employment situation,
   b. educational background, and
   c. occupational experience.
4. There is no relationship between the instructors' opinions regarding whether specific competencies should be emphasized in their pre-service and/or in-service educational programs and the following independent variables:
   a. employment service,
   b. educational background, and
   c. occupational experience.

The major findings of this study are presented below.

1. Even though all respondent groups indicated they possessed average or better competence for all 89 competencies, a significant difference occurred among their responses for 32 competencies. For these 32 competencies, the post-secondary instructors perceived themselves more competent than did the secondary instructors. Although the two post-secondary respondent groups rated themselves quite similarly, the nonproduction instructors had a tendency to rate themselves slightly higher.

2. The four functions in which both post-secondary instructor groups believed they had above average[10] competence were: (a) instruction planning, (b) instruction execution, (c) guidance, and (d) professional role and development. The nonproduction instructors also indicated they had above average competence in instruction evaluation, and the production instructors responded in like manner for the advisory committee functions. The secondary instructors, however, did not rate themselves above average for any of the eleven functions.

3. Less variability occurred among the respondent groups regarding when competencies should be developed in their instructional programs. Significant difference occurred for only 12 of the 89 competencies. These competencies belong to the management, guidance, student organization, and coordination functions. For all 12 competencies, the nonproduction respondents placed less emphasis on pre-service training than did the other respondent groups.

4. Nonproduction respondents stressed in-service over pre-service education for 23 of the 89 competencies. The functions to which the majority of these competencies belonged were: (a) advisory committee, (b) guidance, (c) coordination, (d) professional role and development, and (e) instruction evaluation.

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[10] The reader is reminded that a five point interval scale was used where "average competence" equalled 3.0 and "above average" equalled 4.0. A mean response of 3.8 or above for a respondent group for a given function was considered an "above average" response.

5. Secondary and post-secondary production instructors either placed equal emphasis on pre-service and in-service training for the development of the 89 competencies or placed more emphasis on pre-service programs. The production instructors tended to emphasize pre-service programs more often than did the secondary instructors. The nonproduction instructors placed equal emphasis on pre-service and in-service programs or placed more emphasis on in-service.
6. Four significant differences occurred among these groups regarding the independent variables. (a) Production respondents had considerably more years of teaching experience (15.5) than did the secondary (11.3) or non-production (8.0) instructors. (b) Nonproduction respondents had more nonproduction agricultural experience (8.0) than did the production (5.2) and secondary (2.0) instructors. (c) More than 20 percent of the post-secondary instructors had <u>not</u> participated in a student teaching or internship experience as compared to 6.2 percent of the secondary instructors. (d) Secondary instructors had more professional education credits than did the post-secondary instructors. The post-secondary instructors had participated, however, in professional education and technical agricultural workshops and courses as much as the secondary instructors during the past three years.

7. The larger a nonproduction respondent's teaching load, the higher he rated his competence for the instruction execution, management, guidance, and student organization functions. The same relationship existed for the production respondents regarding the management function.
8. A positive relationship was found between the secondary and nonproduction respondents' educational backgrounds and their ability to develop and maintain an advisory committee. This relationship also existed for the secondary respondents regarding the instructional planning and guidance functions. The situation was completely reversed for the production respondents. Production instructors without master's degrees in agricultural education tended to rate their competence higher than production respondents with master's degrees in agricultural education for six of the eleven functions. These were: (a) instructional planning, (b) guidance, (c) school and community, (d) professional role and development, (e) coordination, and (f) advisory committee.
9. For the secondary and post-secondary nonproduction respondents, a positive relationship existed between their participation in student teaching or an internship experience and their ability to plan for instruction. This relationship also prevailed for the nonproduction respondents regarding the instruction evaluation function.

10. A direct relationship prevailed between the professional improvement in-service activities of the secondary and nonproduction respondents and their ability to perform their professional role and development function. The same relationship was evident also between these in-service activities and the student organization function for the secondary instructors.
11. Agricultural teaching experience was positively correlated to the secondary respondents' perceived level of competence for eight of the eleven functions. These functions were: (a) curriculum planning, development, and evaluation; (b) instructional planning; (c) instruction execution; (d) management; (e) school and community relations; (f) professional role and development; (g) coordination; and (h) advisory committee.
12. A significant or relatively strong negative relationship was found between the nonproduction respondents' production agricultural experiences and their perceived degree of competence for the following five functions: (a) curriculum planning, (b) instructional evaluation, (c) management, (d) guidance, and (e) professional role and development.
13. For the secondary instructors, a significant and/or relatively strong relationship occurred between their nonproduction agricultural experience and their ability to perform the guidance, school and community relations, curriculum planning development, and evaluation and instructional planning functions.

14. Only 4 of the 297 correlation tests calculated for the in-service-pre-service dependent variable were significant; two for the production respondents and two for the secondary respondents. The more teaching experience a production respondent possessed, the more emphasis he placed on in-service programs for the development of professional competencies included in the student organization and coordination functions. The more production agriculture experience a secondary respondent possessed, the more importance he placed on pre-service programs for the development of his school and community relations and instructional evaluation competencies.
15. In general, respondents that had most frequently participated in in-service activities placed greater emphasis on the development of professional competencies in their in-service rather than their pre-service educational programs.

Discussion

This discussion is focused on one basic question. That is, what have the findings of this research contributed both in theory and in practice to the process of developing curricula for vocational educators in agriculture? Prior to the discussion of this question, the researchers believed it would be helpful to discuss some of the major issues surrounding the concept of "competency-based teacher education" and to express their philosophical position regarding these issues.

Issues Regarding Competency-Based Teacher Education

As so often is the case with new concepts or innovations, the use of competencies as a basis for preparing and certifying teachers has given rise to a number of educational issues. The first and probably most crucial issue is how should teaching competency be defined? The range of positions taken regarding this issue can be stated in the form of three basic questions.

Is teaching competency the ability to demonstrate mastery of knowledge about teaching? Is teaching competency the ability to perform the behavior and tasks of teachers? Or is teaching competency the ability to bring about desired learning outcomes? The underlined portions of these questions reflect three different philosophical positions found in the literature regarding the definition of teaching competency.

Historically, teacher training institutions have provided an environment in which teaching competency of prospective teachers was determined by their ability to demonstrate mastery of knowledge about teaching. This is reflected in the type of instruction generally found in college classes; that is, lectures, discussions, reading, and opportunity for reflective thinking. These are tried and proven procedures for knowledge mastery and required only a library, knowledgeable instructors, and opportunities to engage in reflective thinking and discussion.[12]

During the past decade or two, the emphasis on teacher education has changed from mastery of knowledge of teaching to the ability to

perform the behavior and tasks of teachers. This is evidenced by the introduction of microteaching and a more extensive use of audio-visual equipment in teacher preparation. These two techniques, used either separately or together, have provided prospective teachers with an opportunity to practice and/or exhibit the knowledge it was assumed they possessed. Additional evidence of this movement is the more extensive use of the teaching internship programs supplementing or replacing the student teaching experience.

Whether a teacher education institution can economically or practically design an experience for prospective teachers in which they can demonstrate the ability to bring about desired learning outcomes remains an unanswered question. If these learning outcomes are behaviors which develop over a long period of time (particularly true in the affective domain), then it would seem more sensible to gather this type of evidence after a teacher has been on the job for a year or more.

Although these definitions are discussed in the literature as mutually exclusive entities, the researchers are seriously questioning the validity of this position. Is it not true that in order to bring about desired learning outcomes (definition 3), a teacher needs some knowledge and understanding of the many dimensions of the teaching-learning process (definition one)? If the teacher is the coordinator of the learning experience which provides the student with the opportunity to develop and perform the desired outcomes (definition three), doesn't he have to conduct a number of teaching tasks and

behaviors (definition two)? In other words, mastery of knowledge is often considered an integral part of one's ability to perform teaching tasks and behaviors and the ability to perform various teaching tasks is often a necessary condition for bringing about the desired learning outcomes.

These definitions also have relevance to the pre-service and in-service preparation of teachers. The researchers are suggesting that the mastery of knowledge definition might be most relevant at the early professional developmental stages of a prospective teacher. The second definition--ability to perform behaviors and tasks of teachers--is probably a more relevant criterion as prospective teachers begin to grow professionally but prior to their employment. The ability to bring about desired learning outcomes might be used, in some instances, as a criterion for teaching competence prior to employment but generally will be used after a teacher has gained employment.

The second major issue regarding the use of competencies for preparing and certifying teachers is the concern that the process would fractionalize teaching by breaking it down into parts which when put together would not equal the whole. To assert that the whole of teaching is not necessarily equal to the simple accumulation of its parts is, of course, a valid assertion. However, as Rosner[13] indicated:

> even traditional teacher education programs fractionalize the acts of teaching via courses, lectures, readings, etc., into smaller and smaller units. Even humanists who would embrace the whole when they discuss teaching must address themselves to its parts. Competency-based teacher education (CBTE) does not deny that fractionation occurs. It is, in fact, deliberate.

> But CBTE has the edge over traditionally fragmented programs in that the parts are made more explicit in an attempt to make sense of the whole. As long as one is involved in the evaluation of teaching and learning, fractionation will go on. As long as there is a desire to study teaching, fractionation will occur.

Fractionation of tasks or functions to be performed by no means originated with CBTE. The system used to place a man on the moon--Program Evaluation and Review Technique (PERT)--was based on this concept. Since the successful use of PERT in the space program, many industries have adopted this or similar methods to develop and evaluate administrative and operational structures of their companies.

Another crucial issue for CBTE is determining at what level of specificity the parts (competencies) must be defined. The question of how discrete the units must be is an empirical one that has not been completely answered at the present time. Rosner[13] states that:

> the answer probably lies in the research strategy designed to test any specific hypothesis concerning teaching behavior and pupil learning. Ultimately, the discreteness issue will be resolved when we discover the level of teacher behavior at which we begin to discern variability in pupil learning or variability in effective school operation. If it can be demonstrated that 'global' definitions are related, then that is the level to be addressed if very discrete behaviors are related to pupil outcomes or school operations, then that is the way to proceed. The level of discreteness or generality is likely to vary across classifications of teaching behavior.

These are probably the three most important educational issues regarding competency-based teacher education. Although there are a number of administrative and/or political issues regarding this

concept, the researchers decided that the educational issues were most germane to this discussion.

In summary, the researchers believe that the competency-based teacher education approach to curriculum development is a valid concept which, at the minimum, merits considerable reflection and empirical experimentation to determine its applicability for the development of relevant curricula in vocational and continuing education. The writers do not wish to leave the impression that they are suggesting this approach as the only one to consider, but rather one viable alternative which vocational and continuing educators can select.

The Contribution of this Study

Based on the assumption that the competency-based approach to curriculum development is a viable alternative, what has this study contributed to the understanding of this strategy for curriculum development? Before a discussion of this question can be pursued, the answer to another question must be provided. That is, what is involved in a competency-based approach to curriculum development? A perusal of the literature revealed that those individuals writing about competency-based teacher education can be classified into two major categories. One, those addressing themselves to the issues and problems regarding competency-based teacher education; and two, those discussing the strategy to be followed for the development of curriculum for this program. Although a number of semantic differences exist among these writers regarding what constitutes a

competency-based approach to teacher education, there is general consensus regarding the procedure which should be followed. Basically, they suggest that competency-based teacher education is comprised of five major steps.

1. Identify those competencies a teacher should possess.
2. Develop a list of performance or behavioral objectives for each competency.
3. Develop a means for assessing the clientele's needs.
4. Develop an adequate delivery system (pre-service and in-service educational programs) for meeting these needs.
5. Develop a comprehensive evaluation system.

The purpose of the study was to provide foundation data from which an initial set of generalizations could be developed to guide subsequent action taken in the first, third, and fourth steps in this process. The remainder of this section will be devoted to a brief discussion of these findings.

Competencies Vocational Education Instructors in Agriculture Should Possess - Since considerable empirical research had been conducted regarding the competencies vocational education instructors should possess, the researchers believed their major task was to adapt these competencies to the situation in Wisconsin. Since the procedure employed to implement this task was explained in the "Design" section of this publication, it will not be discussed again in this section. The major finding or generalization derived from this investigation was that there was general agreement between the post-secondary and

secondary vocational education experts that the competencies included in this study were equally important for both the secondary and post-secondary vocational education instructors in agriculture.[11)]

Assessing Clientele Needs - One method of identifying clientele needs is determining the present level of competence the clientele presently possess and compare this with a competence standard or criteria for competent teachers. In this study, the self-appraisal method of determining competence levels for each competency was used. The instructors' responses were also compared with selected independent variables in an attempt to determine why one group rated themselves higher or lower than the other groups for a particular competency and/or function.

As one analyzes these data, it becomes quite evident that the post-secondary production instructors, post-secondary nonproduction instructors, and secondary instructors each have their own unique set of characteristics and educational needs. For example, the production instructors had the most teaching experience, the largest teaching load, the most production agricultural experience, and participated in the most professional education and technical agriculture credit and non-credit courses or workshops conducted by the university during the past three years. The nonproduction respondents were on the opposite end of the continuum for all these items with the secondary instructors somewhere in between. The nonproduction respondents, however, did have the most nonproduction agriculture experience and the largest percent of respondents that had a master's degree in agricultural education.

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11) See Appendix C for a list of these competencies.

As might be expected, post-secondary and secondary instructors did not report the same degree of competence for each of the eleven professional functions. Also, the manner in which a respondent in each group related to the independent variables (i.e., teaching experience) influenced his perceived degree of professional competence. Some of the major findings related to these two generalizations were:

1. Post-secondary instructors generally perceived themselves to be professionally more competent than secondary instructors. This statement would seem logical, particularly for the post-secondary production instructors, since they had considerably more agricultural teaching experience, more production agricultural experience, and had participated more frequently in in-service activities. A strong correlation did not exist, however, between these independent variables and the production respondents' perceived competence levels. For the nonproduction instructors, a relationship did exist between those functions in which they expressed the greatest degree of competence and the possession of a master's degree in agricultural education.
2. Post-secondary instructors with the largest teaching loads also expressed the greatest degree of professional competence. The reverse situation generally prevailed for the secondary instructors. A strong relationship existed between secondary respondents' perceived levels of competence and their agricultural teaching experience. This last statement probably explains the prior statement; that is, as an instructor's experience or educational level increases, his

professional competence increases.

3. The secondary and post-secondary nonproduction respondents with a master's degree in agricultural education tended to rate their professional competence higher than those without this degree. The reverse relationship existed, however, for the post-secondary production instructors. That is, the production instructors with master's degrees rated their competence lower than the instructors without master's degrees. Since these instructors as a group had an average of 15 years of teaching experience, this finding may be providing support to one of the major assumptions of competency-based teacher education; that is, teacher competence can be obtained from a variety of experiences many of which are not planned or organized by teacher educators. Thus, before a student is asked to follow an organized professional sequence of learning experiences, an assessment should be made to determine if he already possesses competencies that the educational program was designed to develop.
4. The secondary instructors indicated that their nonproduction agricultural experience increased their ability to perform the professional functions. This undoubtedly is a reflection of the increase in the urban enrollment in agriculture and subsequently the demand for more diversified course offerings in the secondary school programs.

5. Nonproduction respondents with the least production agricultural experience expressed the highest degree of professional competence. This finding supports the philosophical position that production agricultural experience should not be a prerequisite for all prospective agricultural instructors.
6. For the secondary and post-secondary nonproduction instructors, a relationship existed between their perceived degree of professional competence (particularly their ability to plan instruction) and their participation in the student teaching or internship experience. This provides at least some credence for the inclusion of this experience in prospective teachers' educational programs.

Developing an Adequate Delivery System - When should competencies be developed? What means should be employed to develop them? These are two basic questions that must be answered as one decides upon the most appropriate delivery system for an instructional program. This research is related to only the first of these two questions. The respondents were asked to indicate whether they believed a competency should be emphasized in the pre-service program, in-service program, or emphasized equally in both programs. The main generalization abstracted from the instructors' responses was although less significant variation was found among the three respondent groups for the in-service-pre-service variable than the previously discussed "level of competence" variable, the pattern of responses was mo consistent from one function to another for this variable. For example, the production instructors

consistently emphasized pre-service more than in-service educational programs; whereas, the nonproduction instructors placed more importance on in-service than pre-service programs for the development of these competencies. The secondary instructors tended to place equal emphasis on pre-service and in-service with a slight tendency toward pre-service. The reason why nonproduction respondents emphasized in-service programs could be explained by the fact that respondents that had most frequently participated in in-service activities placed greater emphasis on the development of professional competencies in their in-service rather than their pre-service educational programs. Therefore, since a greater percent of the nonproduction respondents had obtained a master's degree in agricultural education, they tended to emphasize in-service more than pre-service educational programs.

Implications and Recommendations

Based on the presentation of data and the discussion of the findings of this study, it became quite evident that differences not only existed among the three respondent groups but also within each group. This observation has many implications for the development of curricula for prospective vocational education instructors in agriculture and those already teaching. The findings of this study could certainly serve as an initial input into the development of these curricula. Subsequent research must be conducted, however, to provide answers for a number of questions that still remain unanswered. For example, what level of competence should an instructor possess for each of these competencies in order to be considered a competent teacher? Does this

competence level vary from secondary instructors to post-secondary instructors? If a competency should be emphasized equally in the pre-service and in-service programs, what level of competence should be established for each program? Does a relationship exist between a given degree of competence for each of these 89 competencies and a teacher's ability to obtain desired learning outcomes?

Effective July 1, 1974, the Department of Continuing and Vocational Education becomes a newly developed administrative unit. Two years ago an Ad Hoc Curriculum Committee was appointed. This Committee was given the responsibility of examining the present curricular offerings of all units comprising this new Department and of making recommendations regarding what existing and/or new curricular offerings should be included in the new Department. The researchers sincerely hope that the findings of this study will assist the Curriculum Committee in their task of not only revising or developing curricula for vocational educators in agriculture but for educators in all areas of vocational and continuing education.

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Appendix A

Competencies, by Functions and Tasks, Presented to the Panel of Experts*

*An asterisk indicated those competencies which were precluded from the questionnaire sent to the vocational agricultural instructors. The means by which they were eliminated are discussed under Research Design in this document.

The terms vocation and vocational-technical were used interchangeably in this document.

Competencies, by Functions and Tasks, Presented to the Panel of Experts

A. CURRICULUM PLANNING, DEVELOPMENT, AND EVALUATION

A-1. Plan a Vocational Education Curriculum in Agriculture

1. Collect curriculum information through a vocational education survey in agriculture

*2. Direct students in the collection of data through a vocational education survey in agriculture

3. Collect student background information and occupational interest data to identify vocational education in agriculture curricula needs

4. Write objectives for a program offered in the vocational education curriculum in agriculture (based on students' needs and the survey information)

5. Identify the content areas such as beef, dairy, taxes, etc., to implement program objectives

6. Organize content areas based on priorities regarding the time and resources available

7. Determine the long-range curriculum needs for the vocational education department in agriculture

A-2. Evaluate a Vocational Education Curriculum in Agriculture

1. Maintain continual follow-up information on the placement, employment, and further education of each graduate of the vocational education program in agriculture

2. Determine to what degree the objectives of the vocational education programs in agriculture have been accomplished

*3. Determine the reasons students drop out of the local vocational program/courses in agriculture

4. Assess the relevancy of the program objectives and course offerings of the vocational education program in agriculture

*5. Evaluate the adequacy of the total resources needed and available for the vocational education program in agriculture

B. INSTRUCTION - PLANNING

B-1. Structure a Course

1. Review the program objectives and select the appropriate objectives for the course

2. Sequence the course objectives

B-2. Design a Course Unit

1. Identify the unit topics for a course

2. Determine student needs and goals for course planning

3. Develop objectives and lesson topics for a unit

4. Correlate unit content with on-the-job and/or laboratory experiences

5. Determine group and individual learning experiences for a unit based on individual differences of students

B-3. Plan a Lesson

1. Identify the specific behavioral objectives for a lesson

2. Determine the time needed and select the appropriate teaching methods for a lesson

3. Provide for student learning experiences consistent with the lesson

B-4. Select Instructional Resources

1. Select the appropriate teaching aids for the most effective presentation of the lesson with adequate prechecking for performance of the aids

*2. Others

B-5. Develop Instructional Materials

*1. Develop original instructional materials such as individualized related assignment sheets, transparencies, charts, etc.

*2. Involve students in the preparation of instructional material.

*3. Determine and develop instructional media and aids

C. INSTRUCTION - EXECUTION

C-1. Direct Student Activity

1. Conduct and utilize a variety of teaching methods for instructing students in groups

2. Utilize a variety of teaching methods for providing students with individualized instruction

C-2. Apply Basic Instructional Strategies

1. Utilize and implement the lesson plan

2. Employ a variety of strategies to ensure the instruction meets individual student needs

3. Be aware of and use appropriate learning principles in the instructional process

4. Utilize instructional activities which assist the vocational development and maturity of the students

C-3. Engage Educational Media and Resources

*1. Utilize contemporary instructional media and aids such as single concept films, tele-speakers, video-tapes, and computer-assisted instruction

D. INSTRUCTION - EVALUATION

D-1. Evaluate Performance of Students

*1. Establish criteria for student performance

2. Determine the sources and types of evidence needed upon which to make a student evaluation

3. Judge the students' performance or products in relation to instructional goals

*4. Devise self-evaluation techniques for students to use to evaluate their own progress

*5. Formulate a system of grading consistent with school policy

D-2 Develop Tests and Rating Sheets

1. Develop objective tests

*2. Develop subjective tests

*3. Select and administer appropriate tests

D-3. Evaluate Quality of Instruction

1. Review student progress and/or achievement records to assess suitability of instruction

*2. Formulate cooperatively with students the procedures which provide for their participation in the evaluation of instruction

E. MANAGEMENT

E-1. Project Instructional Resource Needs and Prepare Budgets

1. Identify and compile a list of consumable supplies needed in a vocational education in agriculture course and/or program for the academic year

2. Recommend reference books and periodicals related to vocational education in agriculture that should be added to the library

*3. Prepare a budget based upon projected resources needed

E-2. Procure Supplies and Facilities

*1. Prepare purchase requests for approved vocational equipment and supplies

*2. Design a procedure for acquiring and/or accepting consumable supplies and materials needed in a vocational course in agriculture

*3 Devise a system for determining and collecting student fees for consumable supplies in accordance with school policy

E-3. Maintain Records and a Filing System

1. Devise and maintain a functional filing system for instructional materials, records, report forms, and pertinent departmental data

2. Develop and maintain individual student files including grades and vocational and personal information in accordance with school policy

E-4. Provide for Safety of Students in the Shop and/or Laboratory

1. Propose guidelines covering approved safety apparel and devices for vocational students using hazardous equipment

2. Establish a procedure for attending to the first aid needs of vocational students

3. Maintain a record of safety instruction presented in compliance with safety laws and regulations

E-5. Control Student Behavior

1. Formulate with students acceptable standards of behavior in accordance with school policy

2. Identify causes of student discipline problems

3. Decide upon and carry out disciplinary action when warranted

E-6. Maintain the Shop and/or Laboratory

1. Establish a system for inventorying, repairing, servicing, storing, and securing supplies and equipment in the shop and/or laboratory

*2. Establish a procedure for use of tools and facilities by students, outside groups, and other school personnel in accordance with school policy

F. GUIDANCE

F-1. Obtain Background Information on Students

1. Secure information for permanent records and other reliable sources to use when counseling students

*2. Arrange and conduct interviews with prospective students to assure the inclusion of those students who can and sincerely wish to profit from instruction

F-2. Promote Constructive Interrelationships with Students

1. Develop positive relationships with students to establish rapport and gain their confidence

2. Counsel students periodically concerning the progress toward their occupational objectives

3. Advise students of the qualifications necessary for entrance and/or continuance in different agricultural occupations

F-3. Counsel Students

1. Recognize potential problems of students

*2. Prepare for and conduct a successful conference for counseling a student

*3. Prepare for and conduct successful group counseling sessions

4. Others

F-4. Involve Resource Persons and Agencies in Assisting Students

1. Establish and maintain a professional relationship with the guidance counselor and other teachers

*2. Assist students with their personal problems by working cooperatively with agencies such as the health and welfare services

3. Others

F-5. Assist Students in Planning Post-Secondary Education and/or Employment

1. Assist students in obtaining employment and/or enrolling in a post-secondary educational program of their choice

2. Conduct follow-up studies of each agricultural education student at periodic intervals to determine his progress towards his career goal

3. Present information to students on occupational opportunities

4. Present information to students on post-secondary training and educational opportunities available to them

G. SCHOOL-COMMUNITY RELATIONS

G-1. Plan and Publicize the School-Community Relations Activities of the Vocational Program

1. Plan the school-community relations activities for vocational education in agriculture which assist in and enable public awareness of the educational program

2. Conduct the planned community relations program through the various media to the appropriate public

*3. Direct student presentations describing activities of the vocational program in agriculture

G-2. Maintain Good Community Relationships

1. Sponsor activities to familiarize students, parents, and members of the community with the program

2. Provide liaison with community groups, services, and interests to the vocational education program in agriculture

*3. Assist in the appropriate activities relating to business, civic, and social functions within the school community

G-3. Obtain School-Community Feedback on the Vocational Program in Agriculture

*1. Study election results (student council, class officers, breed associations, and cooperatives) to determine the image of the vocational students in the school and community.

2. Obtain formal/informal feedback on the vocational education program in agriculture from the community power structure, parents, students, and school officials

G-4. Maintain Good Intraschool Relationships

1. Maintain working relationships with the faculty, administration, and supporting school staff through cooperation and mutual effort

2. Attend faculty meetings, departmental meetings, and meetings of special committees

H. STUDENT VOCATIONAL ORGANIZATIONS (SUCH AS FFA AND YOUNG FARMERS CLUB)

H-1. Establish a Student Vocational Organization

1. Acquaint prospective members and/or their parents with the purposes, activities, and values of the student vocational organization

2. Assist in the development and/or modification of a student vocational organization

H-2. Maintain a Student Vocational Organization

*1. Conduct a formal meeting of the student vocational organization

2. Assist in the planning and conducting of the activities of the organization

3. Maintain the student vocational organization as an integral part of the instructional program

4. Evaluate the student vocational organization

H-3. Participate in Activities of the State and National Student Vocational Organization

1. Assist students in participating in district, state, regional, and national contests and activities

*2. Serve as an advisor for district, state, regional, or national student vocational organization contests and activities

3. Others

I. PROFESSIONAL ROLE AND DEVELOPMENT

I-1. Uphold Philosophy and Goals of the Profession

1. Develop and express a philosophy of vocational and technical education that is consistent with the goals of the teaching profession

2. Maintain ethical standards expected of a professional educator in agriculture

3. Exchange observational visits, innovations, and ideas with other teachers

I-2. Contribute Professional Service

1. Support and serve professional organizations as a member, an officer, or on committee assignments

2. Contribute to knowledge in the field by writing an article for a journal, assisting in research, or securing data

*3. Serve new teachers by contributing professional expertise to assist in solving school-community problems or by responding to other relevant requests for assistance

I-3. Advance One's Professional Competencies

1. Improve professional capabilities and certification status through a planned professional improvement program (such as in-service, graduate work, institutes, and readings)

2. Develop and implement a systematic self-evaluation program that provides insight into the technical-professional competencies required

J. COORDINATION

J-1. Administrative Coordination

1. Inform the school administration of departmental activities

2. Inform the faculty and staff of departmental activities

3. Inform the community residents and area agencies of departmental activities

J-2. Coordination of Production Agricultural Occupation Experience Programs

1. Assist students with identifying and planning appropriate projects

2. Assist students to develop an appropriate record system for production projects

3. Make instructional visits to students concerning their projects

*4. Develop an appropriate student evaluation system for production projects

5. Others

J-3. Coordination of Nonproduction Agricultural Occupation Experience Programs

1. Identify, select, and prepare students for training stations

2. Identify and secure appropriate training stations

3. Integrate activities of training stations with curricular learning experiences

4. Develop and utilize training agreements with employers

5. Place students in appropriate training stations

*6. Develop and utilize an appropriate student evaluation system for training station experiences

7. Others

K. ADVISORY COMMITTEE FOR VOCATIONAL EDUCATION IN AGRICULTURE

K-1. Establish an Advisory Committee

1. Identify the role and function of the advisory committee

*2. Establish the criteria for selection of the advisory committee members

3. Obtain school board authorization for organizing the advisory committee

4. Obtain administrative approval of the selected members for participating on the advisory committee

K-2. Maintain an Advisory Committee

1. Orient the advisory committee members to their roles and functions

2. Publicize the establishment of the advisory committee, its members, and its functions to the school and community

3. Communicate the date, place, and agenda for the advisory committee meetings to all persons concerned

*4. Serve as the liaison for the advisory committee and the school administration

5. Utilize the advisory committee in planning, conducting, and evaluating vocational education programs in agriculture

Appendix B

Statistical Procedures

Statistical Procedures

The researchers employed a number of computer programs and statistical tests for instrument development and data analyses. ITEMPACK analysis, which includes the Cronbach coefficient alpha, was used to determine the reliability of the research instrument. One-way analysis of variance was used four times in this study. First, to determine if differences existed between the respondents and nonrespondents for each of the three respondent groups; second, to determine if differences existed between the three groups regarding their perceived competence for each of the 89 competencies; third, to determine if differences existed between the three groups regarding whether a competency should be emphasized in their preservice or in-service programs; and fourth, in conjunction with chi square, to determine if a significant difference existed among the three respondent groups regarding the three independent variables studied in this research.

A Pearson product moment correlation was calculated to determine if a relationship existed between the three independent and two dependent variables.

The Wisconsin Computer Center, University of Wisconsin--Madison, provided the computer programs and statistical analyses for this research.

Appendix C

Dependent Variables (Tables 3-24)[1]

[1] For all tables:
secondary respondents N = 194;
post-secondary production respondents N = 46; and
post-secondary nonproduction respondents N = 24.

TABLE 3

Vocational Agricultural Instructors' Perceived Level of Competence of Curriculum Planning, Development, and Evaluation Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
1	3.21	3.52	3.58	3.86	S
2	3.45	3.28	3.58	1.02	NS
3	3.50	3.65	3.79	1.54	NS
4	3.83	4.00	3.86	.70	NS
5	3.66	3.80	3.96	1.45	NS
6	3.50	3.61	3.38	.38	NS
7	3.26	3.09	3.33	.74	NS
8	3.23	3.48	3.63	3.09	S
9	3.35	3.72	3.63	3.85	S

1. Collect curriculum information through a vocational education survey in agriculture.
2. Collect student background information and occupational interest data to identify vocational education in agriculture curricula needs.
3. Write objectives for a program offered in the vocational education curriculum in agriculture (based on students' needs and the survey information).
4. Identify the content areas such as beef, dairy, taxes, etc., to implement program objectives.
5. Organize content areas based on priorities regarding the time and resources available.
6. Determine the long-range curriculum needs for the vocational education department in agriculture.
7. Maintain continual follow-up information on the placement, employment, and further education of each graduate of the vocational education program in agriculture.
8. Determine to what degree the objectives of the vocational education programs in agriculture have been accomplished.
9. Assess the relevancy of the program objectives and course offerings of the vocational education program in agriculture.

TABLE 4

Vocational Agricultural Instructors' Opinions Regarding When Curriculum Planning, Development, and Evaluation Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
1	3.36	3.69	3.04	1.94	NS
2	3.36	3.67	3.29	.98	NS
3	3.49	3.15	3.54	1.09	NS
4	3.49	3.33	3.67	.58	NS
5	3.49	3.13	3.00	1.87	NS
6	3.45	3.37	2.75	2.37	NS
7	3.01	3.13	2.42	2.35	NS
8	3.01	3.20	2.38	2.79	NS
9	3.06	3.33	2.58	2.06	NS

1. Collect curriculum information through a vocational education survey in agriculture.
2. Collect student background information and occupational interest data to identify vocational education in agriculture curricula needs.
3. Write objectives for a program offered in the vocational education curriculum in agriculture (based on students' needs and the survey information).
4. Identify the content areas such as beef, dairy, taxes, etc., to implement program objectives.
5. Organize content areas based on priorities regarding the time and resources available.
6. Determine the long-range curriculum needs for the vocational education department in agriculture.
7. Maintain continual follow-up information on the placement, employment and further education of each graduate of the vocational education program in agriculture.
8. Determine to what degree the objectives of the vocational education programs in agriculture have been accomplished.
9. Assess the relevancy of the program objectives and course offerings of the vocational education program in agriculture.

TABLE 5

Vocational Agricultural Instructors' Perceived Level of Competence of Instruction-Planning Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
10	3.60	3.82	4.00	3.13	S
11	3.62	3.65	4.00	1.74	NS
12	3.72	3.80	4.04	1.82	NS
13	3.53	3.74	4.08	5.24	S
14	3.56	3.87	4.00	4.46	S
15	3.52	3.95	4.29	9.98	S
16	3.36	3.70	3.79	3.31	S
17	3.39	3.74	3.71	4.43	S
18	3.54	3.72	4.12	6.11	S
19	3.58	3.67	4.13	4.49	S
20	3.46	3.80	3.83	3.92	S

10. Review the program objectives and select the appropriate objectives for the course.
11. Sequence the course objectives.
12. Identify the unit topics for a course.
13. Determine student needs and goals for course planning.
14. Develop objectives and lesson topics for a unit.
15. Correlate unit content with on-the-job and/or laboratory experiences.
16. Determine group and individual learning experiences for a unit based on individual differences of students.
17. Identify the specific behavioral objectives for a lesson.
18. Determine the time needed and select the appropriate teaching methods for a lesson.
19. Provide for student learning experiences consistent with the lesson.
20. Select the appropriate teaching aids for the most effective presentation of the lesson with adequate prechecking for performance of the aids.

TABLE 6

Vocational Agricultural Instructors' Opinions Regarding When Instruction-Planning Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
10	3.40	3.13	3.08	1.20	NS
11	3.44	3.17	2.96	1.92	NS
12	3.69	3.46	3.41	.91	NS
13	3.49	3.22	3.25	1.10	NS
14	3.54	3.33	3.33	.76	NS
15	3.24	3.17	2.75	1.51	NS
16	3.23	2.98	3.00	.94	NS
17	3.45	3.43	3.29	.18	NS
18	3.40	3.50	3.38	.13	NS
19	3.40	3.26	3.25	.29	NS
20	3.40	3.26	3.21	.35	NS

10. Review the program objectives and select the appropriate objectives for the course.
11. Sequence the course objectives.
12. Identify the unit topics for a course.
13. Determine student needs and goals for course planning.
14. Develop objectives and lesson topics for a unit.
15. Correlate unit content with on-the-job and/or laboratory experiences.
16. Determine group and individual learning experiences for a unit based on individual differences of students.
17. Identify the specific behavioral objectives for a lesson.
18. Determine the time needed and select the appropriate teaching methods for a lesson.
19. Provide for student learning experiences consistent with the lesson.
20. Select the appropriate teaching aids for the most effective presentation of the lesson with adequate prechecking for performance of the aids.

TABLE 7

Vocational Agricultural Instructors' Perceived Level of Competence of Instruction-Execution Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
21	3.62	3.89	4.08	3.88	S
22	3.36	3.74	3.71	4.67	S
23	3.51	3.72	3.67	1.20	NS
24	3.48	3.89	4.00	5.33	S
25	3.42	3.67	3.67	2.35	NS
26	3.49	3.87	3.88	4.40	S

21. Conduct and utilize a variety of teaching methods for instructing students in groups.
22. Utilize a variety of teaching methods for providing students with individualized instruction.
23. Utilize and implement the lesson plan.
24. Employ a variety of strategies to ensure the instruction meets individual student needs.
25. Be aware of and use appropriate learning principles in the instructional process.
26. Utilize instructional activities which assist the vocational development and maturity of the students.

TABLE 8

Vocational Agricultural Instructors' Opinions Regarding When Instruction-Execution Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
21	3.36	3.54	3.33	.37	NS
22	3.36	3.22	3.25	.24	NS
23	3.32	3.43	3.33	.12	NS
24	3.27	3.54	3.04	1.41	NS
25	3.45	3.43	3.17	.48	NS
26	3.23	3.37	3.20	.22	NS

21. Conduct and utilize a variety of teaching methods for instructing students in groups.
22. Utilize a variety of teaching methods for providing students with individualized instruction.
23. Utilize and implement the lesson plan.
24. Employ a variety of strategies to ensure the instruction meets individual student needs.
25. Be aware of and use appropriate learning principles in the instructional process
26. Utilize instructional activities which assist the vocational development and maturity of the students.

TABLE 9

Vocational Agricultural Instructors' Perceived Level of Competence of Instruction-Evaluation Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
27	3.31	3.46	3.67	1.86	NS
28	3.56	3.50	3.79	.73	NS
29	3.50	2.96	3.63	6.63	S
30	3.39	3.74	3.75	3.19	S

27. Determine the sources and types of evidence needed upon which to make a student evaluation.
28. Judge the students' performance or products in relation to instructional goals.
29. Develop objective tests.
30. Review student progress and/or achievement records to assess suitability of instruction.

TABLE 10

Vocational Agricultural Instructors' Opinions Regarding When Instruction-Evaluation Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
27	3.39	3.15	3.08	.99	NS
28	3.21	3.30	2.91	.60	NS
29	3.47	3.11	3.46	1.41	NS
30	3.13	3.41	2.96	1.08	NS

27. Determine the sources and types of evidence needed upon which to make a student evaluation.
28. Judge the students' performance or products in relation to instructional goals.
29. Develop objective tests.
30. Review student progress and/or achievement records to assess suitability of instruction.

TABLE 11

Vocational Agricultural Instructors' Perceived Level of Competence of Management Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
31	3.52	3.50	3.79	.74	NS
32	3.60	3.72	3.96	1.41	NS
33	3.40	3.57	3.46	.42	NS
34	3.38	3.57	3.38	.64	NS
35	3.76	3.59	3.58	.53	NS
36	3.48	3.57	3.50	.08	NS
37	3.54	3.47	3.38	.21	NS
38	3.88	4.15	3.67	1.54	NS
39	3.78	4.07	3.58	1.55	NS
40	3.94	4.13	3.67	1.07	NS
41	3.51	4.00	3.79	2.80	NS

31. Identify and compile a list of consumable supplies needed in a vocational education in agriculture course and/or program for the academic year.
32. Recommend reference books and periodicals related to vocational education in agriculture that should be added to the library.
33. Devise and maintain a functional filing system for instructional materials, records, report forms, and pertinent departmental data.
34. Develop and maintain individual student files including grades and vocational and personal information in accordance with school policy.
35. Propose guidelines covering approved safety apparel and devices for vocational students using hazardous equipment.
36. Establish a procedure for attending to the first aid needs of vocational students.
37. Maintain a record of safety instruction presented in compliance with safety laws and regulations.
38. Formulate with students acceptable standards of behavior in accordance with school policy.
39. Identify causes of student discipline problems.
40. Decide upon and carry out disciplinary action when warranted.
41. Establish a system for inventorying, repairing, servicing, storing, and securing supplies and equipment in the shop and/or laboratory.

TABLE 12

Vocational Agricultural Instructors' Opinions Regarding When Management Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
31	3.44	3.13	2.79	3.04	S
32	3.50	2.98	3.00	4.00	S
33	3.45	3.30	3.29	.36	NS
34	3.16	3.35	2.88	1.01	NS
35	3.43	3.76	3.13	1.43	NS
36	3.47	3.59	3.00	1.18	NS
37	3.35	3.70	3.08	1.29	NS
38	3.26	4.00	3.25	4.27	S
39	3.23	3.89	3.17	3.61	S
40	3.06	3.91	3.08	5.44	S
41	3.43	3.80	3.13	1.70	NS

31. Identify and compile a list of consumable supplies needed in a vocational education in agriculture course and/or program for the academic year.
32. Recommend reference books and periodicals related to vocational education in agriculture that should be added to the library.
33. Devise and maintain a functional filing system for instructional materials, records, report forms, and pertinent departmental data.
34. Develop and maintain individual student files including grades and vocational and personal information in accordance with school policy.
35. Propose guidelines covering approved safety apparel and devices for vocational students using hazardous equipment.
36. Establish a procedure for attending to the first aid needs of vocational students.
37. Maintain a record of safety instruction presented in compliance with safety laws and regulations.
38. Formulate with students acceptable standards of behavior in accordance with school policy.
39. Identify causes of student discipline problems.
40. Decide upon and carry out disciplinary action when warranted.
41. Establish a system for inventorying, repairing, servicing, storing, and securing supplies and equipment in the shop and/or laboratory.

TABLE 13

Vocational Agricultural Instructors' Perceived Level of Competence of Guidance Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
42	3.32	3.93	3.25	5.59	S
43	3.91	3.96	4.29	1.44	NS
44	3.62	3.96	3.75	1.95	NS
45	3.81	3.93	3.92	.30	NS
46	3.64	3.98	3.79	1.89	NS
47	3.93	4.07	3.88	.33	NS
48	3.66	3.93	3.92	1.28	NS
49	3.13	3.28	3.04	.50	NS
50	3.74	3.78	3.88	.20	NS
51	3.69	4.07	3.88	2.33	NS

42. Secure information for permanent records and other reliable sources to use when counseling students.
43. Develop positive relationships with students to establish rapport and gain their confidence.
44. Counsel students periodically concerning the progress toward their occupational objectives.
45. Advise students of the qualifications necessary for entrance and/or continuance in different agricultural occupations.
46. Recognize potential problems of students.
47. Establish and maintain a professional relationship with the guidance counselor and other teachers.
48. Assist students in obtaining employment and/or enrolling in a post-secondary educational program of their choice.
49. Conduct follow-up studies of each agricultural education student at periodic intervals to determine his progress toward his career goal.
50. Present information to students on occupational opportunities.
51. Present information to students on post-secondary training and educational opportunities available to them.

TABLE 14

Vocational Agricultural Instructors' Opinions Regarding When Guidance Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
42	3.10	3.54	3.21	1.77	NS
43	3.14	3.33	2.92	.71	NS
44	2.93	3.26	2.88	1.16	NS
45	3.12	3.52	3.17	1.29	NS
46	3.03	3.46	3.17	1.68	NS
47	3.12	3.57	2.79	2.29	NS
48	3.19	3.54	2.96	1.57	NS
49	2.92	3.17	2.71	1.07	NS
50	3.05	3.37	3.04	.89	NS
51	2.96	3.70	2.83	4.71	S

42. Secure information for permanent records and other reliable sources to use when counseling students.
43. Develop positive relationships with students to establish rapport and gain their confidence.
44. Counsel students periodically concerning the progress toward their occupational objectives.
45. Advise students of the qualifications necessary for entrance and/or continuance in different agricultural occupations.
46. Recognize potential problems of students.
47. Establish and maintain a professional relationship with the guidance counselor and other teachers.
48. Assist students in obtaining employment and/or enrolling in a post-secondary educational program of their choice.
49. Conduct follow-up studies of each agricultural education student at periodic intervals to determine his progress toward his career goal.
50. Present information to students on occupational opportunities.
51. Present information to students on post-secondary training and educational opportunities available to them.

TABLE 15

Vocational Agricultural Instructors' Perceived Level of Competence of School-Community Relations Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
52	3.42	3.70	3.33	1.67	NS
53	3.34	3.48	3.21	.62	NS
54	3.54	3.54	3.54	.00	NS
55	3.49	3.76	3.63	1.37	NS
56	3.34	3.72	3.79	4.00	S
57	3.93	3.80	3.96	.36	NS
58	4.10	3.85	3.96	1.35	NS

52. Plan the school-community relations activities for vocational education in agriculture which assist in and enable public awareness of the educational program.
53. Conduct the planned community relations program through the various media to the appropriate public.
54. Sponsor activities to familiarize students, parents, and members of the community with the program.
55. Provide liaison with community groups, services, and interests to the vocational education program in agriculture.
56. Obtain formal/informal feedback on the vocational education program in agriculture from the community power structure, parents, students, and school officials.
57. Maintain working relationships with the faculty, administration, and supporting school staff through cooperation and mutual effort.
58. Attend faculty meetings, departmental meetings, and meetings of special committees.

TABLE 16

Vocational Agricultural Instructors' Opinions Regarding When School-Community Relations Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
52	3.15	3.24	3.04	.19	NS
53	3.11	3.02	3.08	.08	NS
54	3.11	3.00	3.13	.14	NS
55	3.06	3.07	3.29	.35	NS
56	3.02	3.24	2.88	.76	NS
57	3.14	3.04	3.08	.11	NS
58	3.06	3.02	3.13	.05	NS

52. Plan the school-community relations activities for vocational education in agriculture which assist in and enable public awareness of the educational program.
53. Conduct the planned community relations program through the various media to the appropriate public.
54. Sponsor activities to familiarize students, parents, and members of the community with the program.
55. Provide liaison with community groups, services, and interests to the vocational education program in agriculture.
56. Obtain formal/informal feedback on the vocational education program in agriculture from the community power structure, parents, students, and school officials.
57. Maintain working relationships with the faculty, administration, and supporting school staff through cooperation and mutual effort.
58. Attend faculty meetings, departmental meetings, and meetings of special committees.

TABLE 17

Vocational Agricultural Instructors' Perceived Level of Competence of Student Vocational-Technical Organization Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
59	3.70	3.61	3.49	.63	NS
60	3.55	3.41	3.29	.63	NS
61	3.69	3.30	3.38	2.74	NS
62	3.76	3.50	3.46	1.53	NS
63	3.43	3.50	3.29	.27	NS
64	3.62	3.63	3.08	1.93	NS

59. Acquaint prospective members and/or their parents with the purposes, activities, and values of the student vocational organization.
60. Assist in the development and/or modification of a student vocational organization.
61. Assist in the planning and conducting of the activities of the organization.
62. Maintain the student vocational organization as an integral part of the instructional program.
63. Evaluate the student vocational organization.
64. Assist students in participating in district, state, regional, and national contests and activities.

TABLE 18

Vocational Agricultural Instructors' Opinions Regarding When Student Vocational-Technical Organization Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
59	3.25	3.70	3.25	1.62	NS
60	3.15	3.43	3.17	.72	NS
61	3.22	3.46	3.29	.51	NS
62	3.19	3.48	3.25	.74	NS
63	3.04	3.59	3.08	3.14	S
64	3.04	3.82	3.17	4.84	S

59. Acquaint prospective members and/or their parents with the purposes, activities, and values of the student vocational organization.
60. Assist in the development and/or modification of a student vocational organization.
61. Assist in the planning and conducting of the activities of the organization.
62. Maintain the student vocational organization as an integral part of the instructional program.
63. Evaluate the student vocational organization.
64. Assist students in participating in district, state, regional, and national contests and activities.

TABLE 19

Vocational Agricultural Instructors' Perceived Level of Competence of Professional Role and Development Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
65	3.57	3.89	4.04	4.85	S
66	3.91	3.96	4.21	1.19	NS
67	3.64	3.91	4.04	3.07	S
68	3.49	3.89	3.88	3.59	S
69	2.78	3.43	3.42	10.05	S
70	3.67	3.98	3.96	2.64	NS
71	3.23	3.76	3.63	6.49	S

65. Develop and express a philosophy of vocational and technical education that is consistent with the goals of the teaching profession.
66. Maintain ethical standards expected of a professional educator in agriculture.
67. Exchange observational visits, innovations, and ideas with other teachers.
68. Support and serve professional organizations as a member, an officer, or on committee assignments.
69. Contribute to knowledge in the field by writing an article for a journal, assisting in research, or securing data.
70. Improve professional capabilities and certification status through a planned professional improvement program (such as in-service, graduate work, institutes, and readings).
71. Develop and implement a systematic self-evaluation program that provides insight into the technical-professional competencies required.

TABLE 20

Vocational Agricultural Instructors' Opinions Regarding When Professional Role and Development Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
65	3.29	3.33	3.50	.27	NS
66	3.27	3.37	3.38	.17	NS
67	2.97	3.17	2.54	1.94	NS
68	3.06	3.26	3.08	.46	NS
69	3.04	3.07	3.21	.16	NS
70	2.93	3.02	2.96	.09	NS
71	3.02	3.00	2.83	.21	NS

65. Develop and express a philosophy of vocational and technical education that is consistent with the goals of the teaching profession.
66. Maintain ethical standards expected of a professional educator in agriculture.
67. Exchange observational visits, innovations, and ideas with other teachers.
68. Support and serve professional organizations as a member, an officer, or on committee assignments.
69. Contribute to knowledge in the field by writing an article for a journal, assisting in research, or securing data.
70. Improve professional capabilities and certification status through a planned professional improvement program (such as in-service, graduate work, institutes, and readings).
71. Develop and implement a systematic self-evaluation program that provides insight into the technical-professional competencies required.

TABLE 21

Vocational Agricultural Instructors' Perceived Level of Competence of Coordination Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
72	3.79	3.87	4.00	.63	NS
73	3.53	3.63	3.71	.59	NS
74	3.62	3.52	3.67	.26	NS
75	3.60	3.78	3.67	.70	NS
76	3.46	3.76	3.58	1.54	NS
77	3.76	4.15	3.54	3.26	S
78	3.06	3.83	3.67	5.95	S
79	3.16	3.91	3.79	5.40	S
80	3.14	3.83	3.67	4.30	S
81	3.10	3.93	3.75	6.25	S
82	3.15	3.98	3.71	5.59	S

72. Inform the school administration of departmental activities.
73. Inform the faculty and staff of departmental activities.
74. Inform the community residents and area agencies of departmental activities.
75. Assist students with identifying and planning appropriate projects.
76. Assist students to develop an appropriate record system for production projects.
77. Make instructional visits to students concerning their projects.
78. Identify, select, and prepare students for training stations.
79. Identify and secure appropriate training stations.
80. Integrate activities of training stations with curricular learning experiences.
81. Develop and utilize training agreements with employers.
82. Place students in appropriate training stations.

TABLE 22

Vocational Agricultural Instructors' Opinions Regarding When Coordination Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
72	3.04	2.96	2.58	1.33	NS
73	3.05	3.09	2.63	1.14	NS
74	3.14	3.09	3.00	.13	NS
75	3.32	3.28	3.21	.09	NS
76	3.29	3.20	3.33	.11	NS
77	3.27	3.26	3.04	.29	NS
78	3.15	3.98	3.13	5.57	S
79	3.21	3.85	3.21	2.93	NS
80	3.22	3.89	3.17	3.38	S
81	3.25	3.93	3.08	3.89	S
82	3.22	3.93	2.92	4.29	S

72. Inform the school administration of departmental activities.
73. Inform the faculty and staff of departmental activities.
74. Inform the community residents and area agencies of departmental activities.
75. Assist students with identifying and planning appropriate projects.
76. Assist students to develop an appropriate record system for production projects.
77. Make instructional visits to students concerning their projects.
78. Identify, select, and prepare students for training stations.
79. Identify and secure appropriate training stations.
80. Integrate activities of training stations with curricular learning experiences.
81. Develop and utilize training agreements with employers.
82. Place students in appropriate training stations.

TABLE 23

Vocational Agricultural Instructors' Perceived Level of Competence of Advisory Committee Competencies

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
83	3.47	3.89	3.67	2.78	NS
84	3.63	3.67	3.21	1.51	NS
85	3.67	3.80	3.38	.95	NS
86	3.51	3.83	3.83	2.06	NS
87	3.28	3.65	3.42	1.64	NS
88	3.70	3.85	3.79	.37	NS
89	3.47	4.02	3.79	4.53	S

83. Identify the role and function of the advisory committee.
84. Obtain school board authorization for organizing the advisory committee.
85. Obtain administrative approval of the selected members for participating on the advisory committee.
86. Orient the advisory committee members to their roles and functions.
87. Publicize the establishment of the advisory committee, its members, and its functions to the school and community.
88. Communicate the date, place, and agenda for the advisory committee meetings to all persons concerned.
89. Utilize the advisory committee in planning, conducting, and evaluating vocational education programs in agriculture.

TABLE 24

Vocational Agricultural Instructors' Opinions Regarding When Advisory Committee Competencies Should Be Developed in their Instructional Programs

Comp. No.	Secondary	Post-Secondary		F Value	Sign. Level .05
		Production	Nonproduction		
83	3.38	3.50	3.04	.78	NS
84	3.24	3.28	2.88	.70	NS
85	3.24	3.61	2.96	1.62	NS
86	3.21	3.41	2.79	1.45	NS
87	3.16	3.35	2.71	1.62	NS
88	3.12	3.41	2.83	1.41	NS
89	3.13	3.35	2.58	2.26	NS

83. Identify the role and function of the advisory committee.
84. Obtain school board authorization for organizing the advisory committee.
85. Obtain administrative approval of the selected members for participating on the advisory committee.
86. Orient the advisory committee members to their roles and functions.
87. Publicize the establishment of the advisory committee, its members, and its functions to the school and community.
88. Communicate the date, place, and agenda for the advisory committee meetings to all persons concerned.
89. Utilize the advisory committee in planning, conducting, and evaluating vocational education programs in agriculture.

Appendix D

Independent Variables (Tables 25-35)

TABLE 25

Number and Percent of Respondents Employed Part Time and Full Time

Employment Status	Respondent Groups					
	Secondary		Post-Secondary			
			Production		Nonproduction	
	N	%	N	%	N	%
Full Time	187	96.4	42	92.3	24	100.0
Part Time	7	3.6	4	8.7	0	0.0
Total	194	100.0	46	100.0	24	100.0

$x^2 = 3.55$

Nonsignificant at the .05 level

TABLE 26

Number of Hours Respondents Were Involved In Teaching and Laboratory Activities*

Teaching and Lab Activities	Respondent Groups			F Value	Sign. .05 Level
	Secondary	Post-Secondary			
		Production	Nonproduction		
Average Number of Hours	28.0	30.5	27.6	1.70	NS

*Laboratory activities included on-farm instruction.

TABLE 27

Number and Percent of Respondents Possessing A Baccalaureate Degree in Agricultural Education

Degree Status	Respondent Groups					
	Secondary		Post-Secondary			
			Production		Nonproduction	
	N	%	N	%	N	%
Having Agr. Ed. Degree	190	97.9	45	97.8	23	95.5
Not having Agr. Ed. Degree	4	2.1	1	2.2	1	4.5
Total	194	100.0	46	100.0	24	100.0

$x^2 = .416$

Nonsignificant at the .05 level

TABLE 28

Number and Percent of Respondents Possessing A Master's Degree in Agricultural Education

Degree Status	Respondent Groups					
	Secondary		Post-Secondary			
			Production		Nonproduction	
	N	%	N	%	N	%
Having Agr. Ed. Degree	80	41.2	20	43.5	14	58.3
Not having Agr. Ed. Degree	114	58.8	26	56.5	10	41.7
Total	194	100.0	46	100.0	24	100.0

$x^2 = 2.54$

Nonsignificant at .05 level

TABLE 29

Number and Percent of Respondents Having Participated in Student Teaching or Internship Experience

Respondents Had:	Respondent Groups					
	Secondary		Post-Secondary			
			Production		Nonproduction	
	N	%	N	%	N	%
Participated	182	93.8	37	80.4	18	75.0
Not participated	12	6.2	9	19.6	6	25.0
Total	194	100.0	46	100.0	24	100.0

$x^2 = 13.53$

Significant at the .05 level

TABLE 30

Number of Credits (Semester Hours) Respondents Had Acquired in Professional Education Courses

Credits	Respondent Groups			F Value	Sign. Level .05
	Secondary	Post-Secondary			
		Production	Nonproduction		
Average number	20.1	16.8	14.2	3.81	S

TABLE 31

Number and Percent of Respondents Participating in at Least One Professional Education Course or Workshop for Credit During the Past Three Years

Respondent Participation	Respondent Groups					
	Secondary		Post-Secondary			
			Production		Nonproduction	
	N	%	N	%	N	%
Had participated	103	53.1	24	52.2	13	54.2
Had not participated	91	46.9	22	47.8	11	45.8
Total	194	100.0	46	100.0	24	100.0

$x^2 = .026$

Nonsignificant at the .05 level

TABLE 32

Number and Percent of Respondents Attending at Least One Noncredit University Sponsored Professional Education Course or Workshop During the Past Three Years

Respondent Attendance	Respondent Groups					
	Secondary		Post-Secondary			
			Production		Nonproduction	
	N	%	N	%	N	%
Had attended	40	21.0	14	37.0	2	8.3
Had not attended	154	79.0	32	63.0	22	91.7
Total	194	100.0	46	100.0	24	100.0

$x^2 = 5.97$

Nonsignificant at the .05 level (but close)

TABLE 33

Number and Percent of Respondents Participating in at Least One Technical Agriculture Course or Workshop for Credit During the Past Three Years

Respondent Participation	Respondent Groups					
	Secondary		Post-Secondary			
			Production		Nonproduction	
	N	%	N	%	N	%
Had participated	73	37.6	17	37.0	6	25.0
Had not participated	121	62.4	29	63.0	18	75.0
Total	194	100.0	46	100.0	24	100.0

$x^2 = 1.48$

Nonsignificant at the .05 level

TABLE 34

Number and Percent of Respondents Attending at Least One Noncredit University Sponsored Course or Workshop in Technical Agriculture During the Past Three Years

Respondent Attendance	Respondent Groups					
	Secondary		Post-Secondary			
			Production		Nonproduction	
	N	%	N	%	N	%
Had attended	98	50.8	32	69.6	10	41.7
Had not attended	96	49.2	14	30.4	14	58.3
Total	194	100.0	46	100.0	24	100.0

$x^2 = 7.83$

Significant at the .05 level

TABLE 35

Number of Years of Occupational Experience the Respondents Possessed

Occupational Experience in:	Respondent Groups			F Value	Sign. Level .05
	Secondary	Post-Secondary			
		Production	Nonproduction		
Teaching agriculture	11.3	15.5	8.0	4.31	S
Production agriculture	6.2	8.1	3.7	2.39	NS
Nonproduction agriculture	2.0	5.2	8.0	22.22	S